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HONEY.

Its Wonderful Healing Qualities.

ITS USE AS AN ARTICLE OF FOOD AND AS A MEDICINE.

By KARL GATTER.

PREFACE.

It is far more difficult than one would at first suppose, to write a book on honey, and its varied qualities as a source of nourishment and means of remedy for disease, especially when you pass in review before the reader its general use a thousand years ago, its gradual decline, and now its re-appearance. One has thus,

1. To trace the history of honey back to the most ancient times, to find out what were then its various uses and qualities, and what were its prerogatives as a means of food and medicine.

2. To place before the reader the causes through which honey gradually lost its honored place on the table and in the pharmacopœia.

3. To show how, in later times, honey has been gradually restored to its old position, and is again becoming a choice food on the table, as well as a remedy in sickness.

The object of this little work is not to give an extended essay or dissertation on the advantages of honey, but to call the attention of the friendly reader to the advantages and healing virtues of this wonderful product of nature, and to recommend to the beekeepers its rational management; to enlighten the purchaser as to the various means used for adulterating honey, and especially to urge the greater consumption of this health giving product, so that as in earlier times, and as yet among many nations, especially the Polanders, the Russians, and the inhabitants of the Orient, it will become a common article of food, and be found in the larder of every one. Lord Canning, and an honored German chemist, uttered the axiom, that the use of honey and soap was a measure of culture and opulence; to this, Baumgartner adds the industrial use of sulphur; and I add, inform me s to the use of honey by any people or nation, and I will tell you how they stand as regards health and physical strength, since pure, unadulterated honey is for the healthy the simplest, most natural, healthiest and most strengthening food, for the sick their best remedy, and for the convalescent the true balsam of life, to restore their strength and health.

That in writing the history of honey, I should also touch on bee-culture, which is so closely connected with it, lies partly in the very nature of the subject, and partly from my own love of bee-culture.

A strong influence for publishing this book, was the fact that I, a sufferer from hemorrhages, already given up to despair, and at the verge of the grave, was saved by the wonderful curative powers of honey, and now, thank God, I am freed, not only from weakness of my lungs, but rejoice in the possession of perfect health.

At my first attack, upwards of thirty years ago, powders and tea were ordered for me, which benefited me but little. I then placed little confidence in honey, which I used occasionally, and in small quantities. Judging from my present knowledge, I believe that the honey was the only remedy that was doing me any good, and it is this that I have to thank for the gradual, the sure restoration of my health.

As my disease increased, I began to use cod liver oil, which in some measure mitigated my trouble, but at the same time weakened and injured my stomach, so that I could hardly digest anything more, and my condition became worse and worse. Again I returned to honey, when my suffering immediately began to decrease and disappear. Besides the use of honey, I took pains to preserve my breast and lungs from injury, which, in my trying situation as public teacher, was almost impossible. My disease being caused by my constant teaching during so many years. I gave up my profession, and honey as my only medicine, whereby I, by the simplest, safest, quickest and pleasantest manner (for I was fond of honey), relieved the disease in my throat, and out of thankfulness I now write this apology, for the use and benefit of many, especially for the use of those suffering from diseases of the throat and lungs.

I have for many years devoted my closest attention to honey, collected everything relating to it, tested various recommended methods of pu-

rifying it, examined the various species of honey, experimented in its application and working, noted carefully the results, and thus developed rich and valuable materials, part of which I present in the following pages. I shall still continue earnestly to press forward in my researches.

So far as my knowledge goes, there is no book yet written, which treats exclusively of honey as a medicine.

I earnestly hope, that through this work, honey may receive its deserved value, be brought into the family, and that its blessed powers will quickly and safely be appreciated.

Should what I write prove of benefit to but but one person, I will feel that I have not written in vain.

Written on this day of the holy St. Ambrosius, the patron of bees.

KARL GATTER.

I.

Honey.—Its History and Uses as an Article of Food and Medicine.

a. HISTORY OF HONEY.

Honey is gathered by the bees from plants, especially the nectar of the plants, and through instinct is sucked up by the bees, and transferred into the cells of the combs. The juice varies in color from white to brown, is of a rather thick consistency, peculiar smell, and sweet taste; is a vegetable animal product, and differs from sugar in its more oily ingredients and its balsamic qualities and virtues.

To most persons, honey is a pleasant food, and to but few is its taste and smell disagreeable, which especially arises from the volatile oily portion(1) derived from the flower and transferred to the cells with the honey by the bees.

Much trouble has been taken by many persons to produce honey by artificial means, and for this purpose have employed the juices of fruits and of various plants, but attempts have resulted in the production of only a sweet substance, possessing neither the taste nor quality of honey; hence the gathering and storing of the beneficent product will remain with the bees. Their honey receptacle is the chemical laboratory in which, under a wise and good Providence, the juices of plants are gathered, purified, and separated from all foreign and impure substances, and then stored in the cells.

Honey thus gathered, is the essence of the blooming young plant world, in the height of its life, gathered from countless aromatic blossoms, and containing that true balsam in it, which with great effect causes the lengthening, rejuvenating and preserving of human life.

Honey, without doubt, was, during the early ages of man's existence on earth, his first source of nourishment. It, therefore, is no cause of wonder, that the producer of this beneficent product of nature—the bee—has been the steady companion of civilization, transplanted by man from the forest to the yard and garden, and become as it were a domestic animal.

Information relative to the bee reaches back to the earliest ages of which we have any history, and the following shows how far in those early ages the study of bee-culture had advanced. Solon, already, six hundred years B. C., enacted a law, that bee hives in the cultivated fields must stand three hundred feet apart; and Homer, Herodotus, Aristotle, Cato, Varro, Virgil, Pliny, Palladius, Cornelius, Celsus, Julius, Hyginius, Columella and others, composed and wrote panegyrics concerning the activity, cleanliness, skill, economy and public spirit of these insects; the beloved bee father, Aristomachus, of Solus, in Sicily, for fifty-eight years unwearedly pursued his apiarian studies, and composed a work on bees; another honored bee master, Hyliscus, called by his cotemporaries "Agios," devoted his whole life to the study and observation of the bees. In Columella's time, about the middle of the last century, bee-culture appears to have reached its highest standard.

Honey was the common and loved food of the ancients, and with many, it and fruit composed their only food. At the table of the Persians, Grecians, and Romans, it was very prominent, and was used in wonderful quantities; not only was most food sweetened and prepared with honey, but most of their drinks were made out of honey, or were sweetened by it.

The Pramnian wine, a sour wine in the neighborhood of Smyrna in Asia Minor, was, when mixed with honey, a favored drink, and was sent to a great distance(2). The fruit was steeped in honey, and placed on the table as a dessert, and eaten either pure or with roasted pappy.

Their esteem for it was very great. Virgil calls it *donum cæleste*—the gift of Heaven. It was the usual food of Pythagoras; Democritus recommends it to all who wish to live long; and Pliny tells of an old man over one hundred years old, named Rumilius Pollio, who enjoyed a marvellous good health and strength. He was presented to the emperor Augustus, who asked him by what means he was able to retain to so great age the liveliness of his spirits and strength of his body. His answer was, *Intus melle, extra oleo;* internally through honey, externally through oil.

The Greeks and Romans brought honey as an offering to their gods, and every animal sacrificed on the altar was sprinkled with honey; it was used for embalming the dead, employed at the funeral sacrifice, and sprinkled over the grave.

Alexander's warriors in the Indian conquest, enjoyed themselves with the honey found there, and the conquered people had to pay as part of their tribute, honey and wax, just as years after-

(1) Matter in itself not the least dangerous, except to certain individuals, having a tendency to sourness in the stomach, flatulency or diarrhœa.

(2) Many wines will be pleasanter to the taste when mixed with honey; hence the Grecians even yet prepare their poorer species of wines in this manner, and introduce them to the trade as Malaga and Malvazier.

wards the Romans laid tribute on Corsica(1) and Pontus, and at the triumphal celebration honey was distributed to the victors.

In the Holy Bible, among the Hebrews, we find honey often mentioned. The wise Sirach counts it with flour and milk, as the chief necessities of life. It is likened to that bread from heaven—manna; was the first food of children, was used for strengthening the weak and weary and formed a large part of the national wealth, which, as an article of commerce, was brought to Tyre—that old and honored trading post of Phœnicia.

Among the gifts taken by the brothers of Joseph to Egypt, is mentioned honey; Sampson's riddle of honey within the ribs of the lion, is well known.

The Israelites showed the wealth of the land of Canaan by declaring that it flowed with milk and honey; and among the first fruits which the Mosaic law commands shall be paid as tribute, is honey. It is said of Jonathan, the son of Saul, that when weak from fighting the Philistines, he went into the woods, and there found honey flowing out of a tree (probably honey of wild bees, and melted by the great heat); into this he dipped the point of his spear, and thus eating it, revived his strength(2).

John the Baptist fed himself in the wilderness on wild honey and locusts; and it was immediately on their arrival, placed before strangers and guests as a sign of welcome.

We find already, with the Israelites, laws regulating the ownership of bees. Thus, we read in Babbabatra-Tosefta: Bees must lie fifteen ells distant from the town, so that no man may be stung; and in Babba Kama, 114 b., 10 Mischra, 2 Rabbi, Ismael, son of R. Jochanan Ben Berokah says: It is the right of every one to go into the field of his neighbor, and cut off a branch of a tree on which a swarm of bees have settled, but they must make compensation for any damage they may cause;—who pours out his wine in order to save the honey of another, must, after the sale of the honey, be compensated for the loss of his wine;—bee swarms belong to the finder, unless the owner claims them;—finally, is the weighty point—"women and children can bear witness as to the direction from which the swarm came;"—for in those times the testimony of women and children had no weight.

During the Middle Ages, Emperor Charles the Fourth, was most favorable to bee-culture, and the two Nuremberger Forests, St. Sebald and St. Laurence, his own and that of the Holy Roman See, were called bee-gardens. The Bee-Masters' Association or guild, paid him annually over 4000 gold florins as bee-tax and tribute, and received from him, in the year 1350, a diploma which regulated their order.

The witness that bee-culture was maintained in Germany for years before the time of Henry IV., we find in German history, during the 1 th century, that a tribute was often levied which had to be paid for honey.

During these centuries, the knowledge gathered from by these Bee-Masters' guilds was transmitted orally from father to son. The Bee-Masters' guild of Muskau in Lusatia, owned some 7000 hives; the members, who chose from among themselves judges and deputies, must be skilled beekeepers, and before obtaining the position must have shown the strongest proof that they were well qualified. They held yearly, two meetings, when the President (Zeidelrichter) seated upon a raised platform, and bearing his white staff, pronounced judgment and punished those found guilty according to their few but very strong laws; candidates for membership would also be presented at these meetings, and with shaking of hands promise obedience; strifes would be settled, the guild dues collected, in the beginning in the shape of honey, and later in money.

Laws for the protection of bees are found everywhere among the ancient nations, and especially stringent ones; the old Saxon law was that the theft of a swarm of bees from within an enclosure, should be punished with death, and the payment of nine times its worth should the stock have been in an unenclosed position.

In Moravia and Silesia the Zerotin family did much to elevate bee-culture. Some of their regulations in regard to bees from the years 1581, 1613, and 1630, are still extant, which show that at this time already bee-culture must have been well understood. The then beekeepers had their own police, their own justices, whose members were sworn, a beekeepers' guild, certain privileges, and bee-taxes.

During the glorious reign of Maria Theresa, alongside improvements, bee-culture was not overlooked. Professor Jantscha from Craniola, was called to Vienna as Professor of Bee-culture, had in Angarten, and his successor Manzbery, in Belvidere, an apiary where they gave practical instruction. On the 8th of April, 1775, appeared that worthy patent whereby bee-culture was elevated by the removal of impost on bees, the unhindered utilization of the heaths, as also the removal of all hindrance in the manufacture and sale of honey and wax.

b. THE VARIOUS SPECIES AND QUALITIES OF HONEY.

GOOD HONEY must be sweet, sharp, of a pleasing aromatic taste, clear color, pure, almost transparent, not watery or liquid, but on the other hand not too tough or heavy, and be free from all sediment. Stirred with the finger, it should cling to it like bird lime; being slowly raised it should form long threads, and in dropping it should occupy a small space and cling together and disintegrate.

As to the time of gathering, you have spring, summer, and fall honey, the first of which

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(1) The Island of Corsica had to pay to Rome a yearly tribute of 200,000 pounds of wax, which was about one-half the yield, since in all from 7 to 8 pounds of honey was gathered. Varro mentions a man who rented his apiary at an annual rent of 5000 pounds of honey, and the renter retained 2000 pounds as his pay.

(2) 1 Samuel, 14.

gathered in May when the flowers are in their fullest strength and blossom, is the best.

Of all species, virgin honey, that which is stored in pure, freshly-built, white combs, in which no brood has been bred, or pollen stored, which flows of itself from the uncapped cells is the finest and best; the other species, extracted from old combs through heat, pressure, &c., contains, owing to this mode of obtaining it, portions of pollen and other extraneous matters which, in a greater or less degree, give to it a strange taste and a dark color.

Barrel honey is impure, dark, and of an insipid taste, which arises from the fact that the entire contents of the stock, brood, pollen, and other impurities are thrown into the cask and sold.

Owing to difference in countries and situations, to pasturage and degrees of purification, honey differs greatly as to color, taste and smell.

Honey from flowers is mild and pleasant tasted; mountain honey is sharp and aromatic; forest honey is less palatable; buckwheat honey has greater heating qualities, and heath honey has a pitchy and vegetable taste and is the poorest of all.

As to color, honey from Linden blossoms, Eyebright (*Euphrasa Officinalis*), white clover, buckwheat, and Esparsette, is more or less white, the last species having a tendency to red; from rape, chicory, and blue bottle (*Centaurea Ceyamus, L.*) is yellow; buckwheat is red with a greenish tinge. (in summer during great heat, it has a brownish yellow), and from wild buckwheat has a reddish-brown color.

Athea, in Greece, furnishes, from the south side of the hill Hymettus, and Sicily, from the hill and country surrounding Hybla, in which place Thyme scents the air, honey, which, throughout the world is held to be the finest and best. Also the honey from the country surrounding Mantua, the home of Virgil, from Mount Ida, from the shores of the Black Sea, and from the islands of Crete, Cyperus, and Kalydon, were held in high esteem; and even yet, the honey from Spain, and especially from the Grecian Islands, is highly prized, and every year hundreds of quintals are transported to Constantinople, and is of great demand at the Palace of the Sultan. Of most excellent quality is the honey from the Island of Minorca, from Charmouny in Savoy, from Champagne, Narlonne and Montpellier, in southern France, and also that from Portugal. The latter is nearly white, and receives a pleasant aromatic taste from the abundant Rosemary and other sweet-scented flowers, fruits and herbs.

Bohemian honey was noted already in ancient times for its rich aroma and its bright gold color; also in the vicinity of Salzbury and the Alps, the honey has rare value.

Linden honey, if gathered exclusively from the blossoms of the Linden, and thus unmixed with that of any other flower, is esteemed in all lands as the best of all species, owing to pleasant balsamic smell and agreeable taste. Superior honey is also obtained from the aromate plants belonging to the family *Labiatæ* (rosemary, lavender, melissa, sage, penny-royal, phetony, thyme, etc.), also from violets, Primrose, pinks, marigolds, roses, lillies, may-flowers and a great number of trees and shrubs.

Poland, of all European countries, produces the most honey. There are beekeepers there owning 1,000 stocks, and from which they derive upwards of 500 barrels of honey.

c. THE USE OF HONEY AS A FOOD, AS A PRESERVER OF HEALTH AND AS A REMEDY IN SICKNESS.

Honey, as has been already shown, was known and used as the best, most natural and healthiest article of food, can be used in tea and coffee, and as a substitute for sugar in both food and drink.

Honey not only replaces sugar, but in many respects excels it.

If one thinks only on the material from which sugar is made, examine the separation of the foreign substances, such as the process of purifying, etc., I am convinced that this will be sufficient to show that outside of the quality of sweetness there is little to be recommended in sugar, and that honey, that gift of God, far excels it.

Through the use of honey man takes in a most agreeable way both food and medicine, which, with unusual benefit, works into the human system as a preservative against many diseases, and is especially beloved by children; and granting that it has been well purified, can be preserved for years, and in every period of the year be of the same use, and can be thus held as a true medicine chest.

Good, pure, unadulterated honey should therefore always be on hand in every family.

Honey eat upon wheat bread is very beneficial to health.

Children will eat honey-bread sooner than butter-bread; one pound of honey will reach as far, yes farther, than two pounds of butter, and has, besides, the advantage that it is far more healthy and pleasant-tasted, and always remains good, while butter soon becomes rancid and often produces cramp in the stomach, eructations, sourness, yea, even vomiting and diarrhœa.

Well purified honey has the quality of preserving for a long time in a fresh state anything that may be laid in it or mixed with it, and to prevent its corrupting in a far superior manner to sugar; thus many species of fruit may be preserved by being laid in honey, and by this means will obtain a pleasant taste and give to the stomach a healthy tone. One who has once tried it, will never again use sugar in the preserving of his fruits; besides, honey sweetens far more than sugar.

In medicine, and especially in the healing of wounds, was honey, already in early times, used as a universal remedy, constitutes yet the principal ingredient of many medical preparations, is used with the best results in many internal and external diseases; serves as a means for taking powders, for the preparation of salves and the sweetening of medicine.

Honey molifies; promotes festering; causes gentle purging, divides and dissolves, warms, nourishes, stops pain, strengthens the tone of

the stomach, carries away all superfluous moisture, aids digestion, thins and purifies the blood, and animates and strengthens the breast, nerves and lungs. Honey is therefore to be used when suffering with *a cough, hoarseness, stoppage of the lungs, shortness of breath, and especially with the best results, in all affections of the chest.*

Many persons afflicted with various species of consumption, thank the use of good honey, either for their entire restoration to health, or for the mitigation of their often painful condition of body and mind.

Honey is also an excellent remedy for the occasional inactivity of the abdominal organs, and a means of strengthening weak nerves, especially with women.

For severe coughing, barley water mixed with honey and the juice of lemons, drank warm, is a very pleasant relief. It appeases and mitigates fevers, and owing to its taste, and its soothing qualities, it is used as a gargle.

Honey can also be used with advantage in asthma, in constipation, in sore throat; promotes perspiration, lessens phlegm, and is very healing to the chest, sore from coughing.

With old persons, the use of honey is very useful, since it produces warmth and a certain activity of the skin.

For persons leading a sedentary life, and suffering from costiveness, and especially from piles, pure unadulterated honey, either mixed in their drink, used alone, or on bread, is the best and healthiest means of relief.

Honey has also great value as a medicine for children, and is readily partaken of by them in a choice dainty dish. It is especially useful to children afflicted with scrofula or rickets.

In difficult teething, rub the gums with a mixture of honey and an emulsion of quinces.

For the removing of worms, honey has often been beneficially used, and it is often used in diseases of the mouth and throat.

Honey mixed with flour and spread on linen or leather is a simple remedy for bringing to a head, or to maturity, boils, &c. Also, honey mixed with flour or fried onions, serves an excellent purpose as a covering for any hard swelling or callosity or abscess; and for ulcers it is often mixed with turpentine, tar, and tincture of myrrh.

A plaster made of unslaked lime and honey has sometimes relieved most obstinate sciatica.

If good honey is applied to inflamed wounds or boils, it lessens the drawing, quiets the pain and produces a good festering or suppuration; impure honey, on the contrary, irritates the inflamed surface, which will therefore not heal. Undoubtedly, for all wounds, pustulous inflammations, bruises and bad festerings, honey is the best and most reliable remedy, and affords, when it is pure and unadulterated, quicker and safer help than all other known plasters; all that is needed is to spread it rather thick on a piece of linen, place it upon the fresh wound, bind it fast, and renew the plaster every four or five hours. Of course, if bones are broken, surgical aid must be had.

Honey-dough—*arto mele*—a plaster made out of honey and rye flour or rye bread, into which henbane or other narcotic substance is mixed, is an excellent means of irritation, which should be used in festering and bringing the sore to a head, and assuage the drawing and pain.

It should be warmed, spread on a piece of linen and placed upon the sore part.

For convalescents, is good, pure and most refined honey a true balm of life, and is needed by our heroic wounded warriors, whose health has been more or less destroyed, and whose painful disease appears long after their discharge from the army.

For persons who are weakened through debauchery, honey is, of all helps, the best nourishment, since it not only removes the poisons in the system, but also through its virtues strengthens the system, hence it has made itself so necessary to the inhabitants of the Orient.

II.

The reasons why Honey has gradually disappeared from its honored place on the table and in the medicine chest.

When we reflect over the important qualities of honey, and at the same time see how little it is utilized at present, the unwelcome question is presented to us: Why has honey lost in the lapse of ages that value as food and medicine that it once held?

A kind Providence still sends us in abundance this beneficent product, and the bees with the same speed and skill still gather from the flowers the same sweet nectar, and store it in their cells for the blessing and well being of mankind; but man and his surroundings have changed, and herein lies the retrogression of our times, in which honey as a food, and as a medicine, is gradually losing its honored place.

The first blow that honey received was the introduction of sugar. Although the inhabitants of Europe were acquainted with the sugar cane before the crusades, it was not until 1600, that its use became general, and then, as an article of fashion, it was introduced and spread rapidly. Owing to this, honey was less and less used, followed naturally by the decay of bee-culture, and the abolition of the bee-master's guild. The skill and experience of the old practical bee-keepers was gradually lost. Amateurs took the place of practical beekeepers, and bee-keeping soon became a sort of play, in which the practical farmer believed he had nothing to do; hence, in many agricultural works of that period, there is nothing on bee-culture. Want of principle, selfishness, fraud and greediness of gain, also often the ignorance of both the bee-keeper and honey-dealer, deluded many, and led others not only to doubt its healing virtues, but to discard its use. I will state some of the causes.

a. In order that honey might have a clearer appearance, and have a greater consistency or weigh more, it was adulterated with starch, millet flour, pea-flour, or chestnut-flour, owing to which, unless it was immediately used, the honey became sour. Alas, then, the poor sufferers that used such a mixture as medicine, and expected a restoration of health therefrom!

b. Lately, here in Vienna, a farmer's wife went about the city asking "who desired to purchase honey?" A careful housewife, closely examining her honey, exclaimed—"This is no honey, but potato syrup." The farmer's wife frankly replied: "Behold, gracious lady, I have sold a great deal of this, but no one discovered that it was not honey; since, however, you have discovered it, I will bring you true honey." That honey is mixed with syrup, has been long known, but that pure syrup should be sold as honey, without the purchasers at once discovering it, one would not think possible, and satisfactorily proves how little this merciful source of nourishment and health is used.

c. Honey has also been mixed with the juice of carrots, which is readily detected by the cloudy, dark color of the honey and its carroty taste.

d. Like all other creatures, the bees are subject to disease, among which foulbrood is the most dangerous and malignant; this disease is also contagious and often destroys whole apiaries. If the disease becomes malignant, it produces a most contagious odor in the hive, and there is no other remedy but to destroy both the hives and bees.

Should the honey of such a stock be mixed with that of others, it will carry the contagious matters with it, and whoever feeds such honey to his bees, will bring this sickness into his own apiary; especially on this account is the honey of Poland, Hungary, Russia and America to be decried, as there all kinds of honey are mixed together in the barrels and sent to market.

With us there are often foulbroody stock, and is mixed by the purchasers or sellers with other honey, and often, for the purpose of obtaining a higher price, is this disease concealed or denied; hence, it is dangerous to purchase honey for feeding.

I advise, in the purchase of honey for feeding, that there be no disputing over a kreuzer, when one is purchasing from a trusted, just, conscientious person; since a cheap purchase, especially when the honey comes from a distance, often results in the ruin of the whole apiary. For ordinary use, some may imagine, such honey is without danger; but who would use the honey of a foulbrood stock? Not I.

e. Beebread is the pollen of the flowers, which the bees gather from the blossoms of plants, mix with some honey, fasten to their hindlegs, and place it in the cells and cover with wax. It decays readily; the instinct of the bee teaches it therefore not only to gather pollen continually from the same species of flowers (which can be readily seen, if we examine the color of the balls of pollen on the legs of the bees), but they seek to prevent, as long as possible, the fermentation, by covering the top of the cells with honey; yea, further, should a cell, with gathered beebread not be filled by the same species of pollen, then some honey is put between the two to protect it from spoiling. In spite of all these precautions, the bee-bread will not remain good longer than the following spring.

What, however, does man do! he preserves often for months, the combs filled with honey and pollen, and then obtains the honey through pressure or heat, whereby much of the sweet material is lost, and is also mixed with various foreign substances, as fermenting pollen, dead brood, dead bees, the rubbish of old cells, the combs mouldy, and perhaps, soiled by the filthy excrements of bees suffering from dysentery, all of which soon develop and spread their damaging qualities, and rob the honey of all its health-giving qualities.

f. "But I," says Mr. B., "have surely not been deceived! To be entirely safe, I purchased my honey from a true-hearted, honest looking farmer, and owner of a number of swarms; and besides, this man assured me that I could nowhere obtain such good honey as his."

O, how often is the admired rural simplicity only a cloak for refined rascality, and many a plain appearing farmer is a worthy follower of Garrick in the art of dissimulation. Would you, dear reader, have believed that this *honest* farmer most shamefully swindled his purchaser, and gave him the poorest kind of honey?

This hypocritical dealer truly had a bee hive; but this was only a decoy, whereby he succeeded in enticing purchasers in selling his mixtures.

He is ignorant of bee-culture, and does not find it to be worth his while to learn, but purchased his needed wants from the cake-bakers, or at the market, wherever he could purchase it cheapest. He pays no attention to its quality, but buys the worst, and often sells the most disgusting stuff to easily deceived purchasers, and laughs over his skill at deception. Also, the honey offered for sale in the streets of Vienna, by women and children, if it even be honey, is the refuse ware of a neighboring cake-baker, which the deceiving country people give out as their own produce, and thereby do a very thriving business.

In speaking of the adulterating of honey, I must mention also the products of the cake-baker, as gingerbread, Westphalian rye-bread, &c., and quote what honored Nestor in bee-culture, Pastor Dettl, says: "To all the products of the cake bakery, necessarily belong honey. The same products form sugar, often only made from sugar syrup, are sweet, often, however, stale, often having a nauseous taste, when not palpable, unhealthy. The pleasant healthy honey aroma is wanting." And this is the more to be regretted, when it is to be remembered that products are so eagerly sought after by the children, who derive no good from them, but on the other hand, they have their health injured by them.

III.

How can Honey regain its sphere of usefulness? How shall it be obtained, purified, preserved, and used?

Above all, it is necessary to understand bee-culture scientifically, and to advance it practically, aided by the perfected knowledge derived from the teachings of anatomy, chemistry, the microscope, and the discoveries resulting from the movable comb hives of that earnest apiarian,

Dzierzon. The apiarian has therefore to strive to obtain:

1. Fundamental, theoretical knowledge of the nature, the life and habits of the bee. Baron von Berlepsch, says truly: "Before all, learn the theory, otherwise you will remain practical blunderers all your lives."

2. Rational bee-culture, viz.: a knowledge based on a thorough understanding of the nature and object of handling bees.

3. A skilful separation and selection of the various species of honey as regards their qualities and effects, when it is gathered from the hive.

4. The greatest care in gathering, purifying, and preserving of honey.

5. Conscientiousness as regards the faithful performance of these things.

a. Concerning the obtaining, purifying, and preserving of honey.

Order is the soul of all work, and especially in the manipulation of honey; and not less valuable is purity.(1) Since the mixing of honey with flour, bread, milk, fat, or acids produces fermentation and sourness; hence knives, to which the yeast of bread clings, should not be used by the apiarian.

In harvesting the honey, the combs should be assorted immediately upon their removal from the hive, in the following manner:

No. 1. Virgin honey.

No. 2. Honey in older combs.

No. 3. Combs, containing either bee-bread or dead brood.

No 4. Empty combs.

Each of these species of combs will come into use. From the honey combs, will all cells containing bee-bread or dead brood be cut out, and thrown with the refuse of No. 4.

Now we begin with the honey. Take a large dish, place over it two sticks or a wooden frame, and place upon this a tin or earthen colender, or a sieve of brass wire.

Then take comb No. 1—the virgin honey; remove with a sharp knife the caps of the cells and the comb on the dish, with the uncapped side upon the sieve. When the honey has run out, uncap the opposite side and treat it in the same way. When this is also emptied, the combs can be cut into quite small pieces, and these placed in the sieve to drain.

The cold honey collected in this manner, is not yet in a state fit to be preserved; it should be placed in vessels, and allowed to rest for some days, when it will come to the top, from whence it can easily be removed.

Honey thus obtained is the best, remains good for many years, and should alone be used as a medicine.

Now honey No. 2 is to be extracted in the same manner as No. 1; this species is generally very good.

No. 3 is never used by me, but mixed with the remains of Nos. 1 and 2, and sold to the bakers and distillers, who put it all into one kettle, pour water upon it, evaporate it, and press it out and use it in their manufactures.

When one desires to use the remains of Nos. 1 and 2, and the honey combs of No. 3, place all together in a glazed earthen pot; place this in a larger pot or in a vessel with water, which should be gradually brought to the boiling point. During this time the mass should be stirred with a wooden spoon, until it becomes a homogenous mass. Now take the pot out of the water and let it remain quiet for 24 hours, during which time the wax, &c., will come to the top and harden. Now cut with a knife at the edge of the wax an opening, and allow the honey to run out gradually; let it remain for some days, skim it often, and then place it in vessels.

Honey that has crystallyzed in the cells will, by this means, be liquified.

The pot can also have at its bottom a tap hole, into which a cork or wooden stopper could be inserted, through which, after cutting a hole in the wax for the admission of air, the honey, bright and pure, can be immediately tapped into the vessels or jars in which it is to be kept.

Others render the honey in a simpler manner. They take the combs and mash them to a jelly either with a spoon or with their hands, and place it as may be convenient, in a vessel on the window in the sun, or in a roasting oven somewhat warm (usually, after the cooking is done and the fire checked), or upon the stove, or in the bake oven, after the bread has been removed, and is then managed as before described. I must also add, that the hands must be washed before beginning this work, and the vessels and instruments used for nothing else.

The methods of purifying the honey with chalk, wood, bone charcoal, white of an egg, alum, tanin, milk, oak bark, nitric acid, gall-nuts, thorough filtering, casting red-hot iron into it, adding brandy, thinning with water and afterwards evaporating, removes in some measure the acids contained in it, and the false taste, but also weakens the other worthy qualities of honey, so that honey treated in such a manner is often nothing but a sweet material, devoid of any healing, balsamic qualities. Also by being purified by heat, the honey loses much of its true color, taste, and virtue.

It was so easy for me to prepare and purify my honey, that it was free from all false taste, and was sweet and pleasant tasted; and as this unpleasant taste is often the necessary attribute of this balsamic ambrosia, and by its removal, the healing virtues of honey are more and more lost, one must accustom himself to the taste.

I render and purify my honey upon a quite simple and natural manner, upon the cold plan, without any pressure or force. Since through pressure, heat, or the usual methods of violently emptying the combs, injurious substances are introduced into the honey. I obtain from 100 pounds of sealed honey hardly 60 pounds of pure honey, which is of the best quality, and contains the true balm of life.

The residue I sell to the cake bakers at a very low rate.

In taking the honey out of the vessels, do not

(1) Emperor Charles IV. commands purity when refining honey and wax: Cap. de V., 34.

use a tin spoon(1) or any metallic substance; the best is to have wooden spatules and spoons.

The honey, when removed from the combs, dare not stand long unprotected, as it will be rendered impure by dust, attacked by mice, moths, mites, flies, ants, and other insects.

To prevent the ants from obtaining access to the honey, cover the place where the honey is with fine wood ashes, and from time to time moisten them, also covering the combs with oiled paper, and tying them with twine steeped in fish oil as a preventive against ants, since they avoid this oil.

The vessels in which the honey is to be preserved must be watched; tin, iron, and copper vessels, owing to the acid of the honey, and the forming of rust and verdigris, must be well tinned. Far better, therefore, are glass jars or stone vessels, which can be closed by double paper or bladder, in which honey will keep for many years, and although it may candy, it can be readily reduced by a little heat.

You can in these vessels pour over the top wax to the depth of from ½ to ¾ of an inch, which seals it hermetically, and assures its longer preservation.

Sealed honey, in the comb, if all impurities, pollen, and useless wax is removed, can be kept for many years in earth jars.

Honey dare not be kept in moist, damp cellars; must be in cool, well-ventilated places, as it will otherwise obtain an unpleasant taste or become sour. The cold in winter dare not descend below 5° R., for then the cells would burst.

b. Concerning the use or enjoyment of honey.

A known factor in the use of honey, especially as a medicine, is the art and manner of applying it.

Many suppose the quantity used will have the healing and beneficial effect on the human body, but in reality only do themselves injury. As with all other things, so here, too much is injurious. Through the inordinate consumption of this, although the purest of all plant productions, a surfeit and aversion (2) to honey will be produced, which will hinder its healing qualities.

One should use honey in the beginning only in small quantities, one or two teaspoonsful; the best time, early in the morning immediately upon awakening, and just before going to sleep; but no rich supper must be eaten.

1st. Should an aversion to honey be perceived, then it should be taken every alternate day; it may also be used with wheat bread, or with bread and butter, and used instead of sugar in sweetening food and drink.

When one has in this manner become accustomed to honey, he can gradually consume more and more of it, and thus receive the benefit of its wonderful health-giving qualities.

c. The various ways of utilizing honey.

Besides the use of honey as a food and medicine, it is used in various other manners.

From it is made mead, wine, vinegar, beer, brandy, and various kinds of cakes. It is much used in the apothecary, and is the basis of many cosmetics.

In Luthuania it is made into excellent mead, which is allowed to remain quite fully a year before becoming fully ripe. The Linden honey is used for this purpose, owing to its excellent aroma.

Simply by adding yeast to honey you have honey beer, a product almost forgotten in Germany, but still used in Scotland, and very readily drank, and which can be kept fresh and good-tasted for years.

Grafts can be preserved in honey for two months before using.

With the Ancients, especially with the Romans, were all drinks prepared from honey, or mixed with it. I herewith give a few of the receipts.

Water Honey (*hydromeli*), a species of wine drink, made by mixing honey with spring or rain water which has been allowed to stand for a long time. This is often given the sick.

Saltwater Honey (*thalassomelli*), prepared by mixing sea-water, rain water, and honey. This is a pleasant, agreeable, and slightly purgative drink.

Honey Wine (*melititis*), prepared from moist honey and salt, and used as a medicine.

Water Mead (*aqua mulsa*), prepared from long standing rain water and honey; a strengthening and cooling drink.

Mead (*mulsum*), made from old, pure wine and strained honey—a highly-prized drink, which is spoken of by the hundred years old Runullius Pollio, he declaring it should not be absent from any table, and as being given out when the victories of the warriors were celebrated.

Honey Vinegar (*oxymeli*), prepared from honey, old vinegar, sea salt, and sea water. It is used for medical purposes.

Wine Honey (*onomeli*), a drink prepared by mixing the juice of the best grapes with honey.

CONCERNING FOOD HONEY.

Although bees are very industrious in gathering honey, it often happens that a late swarm, or in poor honey years, that the swarms cannot gather their full winter quota of honey. When this misfortune occurs, it is the duty of the beekeeper to preserve his bees by feeding them with honey until the opening of the next honey harvest. This want of honey may also happen in favorable seasons, by taking from the bees too much honey.

How to feed his bees is well known to every beekeeper, and I shall confine myself entirely to the quality and condition of the honey.

Experience teaches us, that honey, when brought from a distance, even when pure and unadulterated, is not so useful for feeding our

(1) I have a letter lying before me now, in which the writer states that he this spring lost a fine Italian swarm, in consequence of having fed it with honey taken from a vessel in which a tin spoon was allowed to remain until it had become quite black, and had escaped his attention until too late.

(2) Inordinate consumption of honey will produce burning sensations in the throat, cramp in the stomach, and colic.

bees as that gathered in our immediate neighborhood.

Uncapped honey ferments and sours speedily in the combs, and should the bees use much of such honey, they will inevitably suffer from dysentery.

Also the smoke and sulphur used in killing the bees has an injurious effect on the uncapped honey.

But feeding is not only necessary in years poor in honey, but also in those rich in honey.

When the yield of honey dew is so great as literally to flow from the fir trees, the eagerness of the bees to gather in their treasure is so great that the extraction of the poison, for the poison bag, is imperfectly accomplished, and hence, in using this honey in winter, dysentery is produced.

Rich honey yielding years are in such situations, the most dangerous, and must, therefore, be helped by feeding the honey produced from flowers.

From what has heretofore been said, we plainly see *how necessary pure honey is for feeding bees, since through impure honey populous hives have been destroyed.*

I have, therefore, every year set apart a portion of good honey gathered from flowers, rendered, as well as in comb, for the purpose of feeding my bees which the beekeeper can use with the greatest confidence.

SUNDRY MATTERS.

The greatest hindrance in using honey as a medicine, is the difficulty of procuring a pure article.

Honey obtained from the apothecary is generally well purified and well adapted for a sweetening material; but in the refining process, as before mentioned, it has lost more or less of its balsamic qualities, and hence, is less valuable as a medicine.

Had I the good fortune to obtain pure honey, its blessed working is made apparent through the immediate improvement of my health; on the other hand, should I use honey which would be very pure and very sweet, but owing to cause heretofore stated, lacking in a greater or less degree the medicinal qualities, my health would remain in *statuo quo*, or very gradually better itself.

The use of good, unadulterated and properly refined honey is of the greatest importance.

I have pledged myself to confine myself wholly to honey. My free position, the needed knowledge, bee-culture, the handling and separating of honey in relation to its qualities and uses, the experience gathered from various and wonderful cures, would not be gained by any other person with like zeal and perseverance, and placed me in a position to devote my whole time and attention to the study.

In purchasing, honey divides itself into these several species.

1. BREAST HONEY.—*a.* This is the *purest virgin honey, miel vierge*, taken from such neighborhoods where plants used for strengthening the chest grow, viz: the Alps, Bohemia, &c. This honey is extracted from the combs, placed in glass jars, tightly covered and sealed.

b. For consumption, lung diseases, &c., and to those suffering from piles, refined honey having especial curative properties.

2. TABLE HONEY.—*a.* This species shows itself especially on the table as a sweetmeat, where it occupies the proper place, and is a much sought for, pleasant and agreeable food, since it acts so beneficially upon the health, and especially as an after-dish, aids the digestion. This species of honey can be used as readily in the combs as in glasses.

b. A second species of table honey is that which can be used as a substitute for sugar, in food and drink, is properly gathered and purified, has little of the foreign taste, and is the best for preserving fruits.

3. FOOD HONEY.—This is either in the combs or rendered, and all who are required to feed their bees, should use the best.

I close my writing with the earnest wish that I may have done something toward the spread of the knowledge of the healing qualities of honey, and caused many to turn their attention to it, and through its use either to wholly cure themselves, or at least to alleviate their sufferings, or to strengthen their health, and finally express the heartfelt wish that honey may prove to others so wonderful in its health-giving qualities as it has to me.

FINIS.

Michigan State Beekeepers' Association.

TUESDAY'S MEETING.

KALAMAZOO, *September* 18, 1872.

About 7 o'clock last evening the members of the Beekeepers' Association began to assemble at the court house, and at 7.30 the association was called to order by President Rood, of Wayne.

The president announced that from information he had obtained, it would not be possible for the regular secretary, Mr. A. J. Cook, to be present at this time and assist during the proceedings of the association, and therefore, the first business in order was the election of a secretary *pro tem.*

On motion of A. C. Balch, of Kalamazoo, and on a vote of the members present, Mr. J. W. Porter was duly elected secretary, and proceeded at once to transact the duties of the office. The treasurer of the association submitted a verbal report as to the monetary affairs of the society.

The regular business details for the evening having been gone through with, President Rood delivered an address upon a topic selected by Mr. Cook, the secretary of the society, viz.: "The Progress and the Needs of Apiculture."

GENERAL DISCUSSION.

Some discussion was had in regard to a remark made by Gen Adair, of Kentucky, alluded to by Mr. Rood in his address, that by actual experiment he had been enabled to obtain a pound of comb from a pound of wax. The

fact being slightly doubted by some members of the association, the president, Mr. Rood, related in detail what he had heard Gen. Adair say upon the subject, stating that Gen. Adair had demonstrated this matter before the Beekeepers' Association, at Indianapolis, and made no secret of the method employed.

Some general talk was had by different members present, in regard to bees using old comb to make new comb, each member stating some experience of his own in regard to this fact. President Rood stated, as a matter of information to the association, that he had seen a piece of artificial comb which was exhibited at Cleveland last year. That owing to a conflict between rival claimants in regard to the patent for this invention, it has not yet come to any practical good.

Mr. Porter made some remarks on the needs of apiculture. The speaker claimed that there should be more science and practical experiment in the art of bee-culture.

Mr. H. King, an amateur in beekeeping, desired to know if any person present had ever had the experience of the queen bee being killed at the time of swarming.

Mr. A. C. Balch suggested that in such case as that suggested it might have been a strange queen that had been killed, and not one that belonged to the hive.

On motion of the last named gentleman, the association adjourned to meet at 8 A. M., Wednesday.

Wednesday Morning's Session.

The association was called to order by President Rood, and he stated that a paper expected to be read at this morning's session by one of the members of the society had not as yet come to hand, and inquired what was the pleasure of the meeting. On the suggestion of Mr. Porter, Mr. Clement was called upon to give his experience in introducing the queen into the hive. He said: I open the hive and find the black queen as soon as I can, if I want to, I keep her, otherwise I pinch her head, and have the Italian queen ready. Then I smoke the bees, and scent them with peppermint and introduce the queen upon a card of brood comb and then go about my business. I have never lost one queen in a hundred by this method.

Mr. Everard, of Kalamazoo, asked if any member had ever had experience in introducing the queen by Mr. Alley's plan of stupefying them with tobacco. No discussion was elicited upon this query. Mr. A. Balch said that it was easy to introduce the queen during swarming time. Almost any method can be followed successfully.

Mr. Everard gave his experience in regard to fertile workers. They can be readily detected by the egg.

Mr. Clement was able to discover them by the same means. He had also taken a puff-ball, burnt it, and the smoke had the effect to stupefy them; they dropped down and were easily found.

Mr. Balch said he had taken the queen and the drone and held them together, and they had copulated together, and a brood had been produced thereby. Some laughter was produced by the novelty of this experiment. The president asked Mr. Balch if the experiment of the enforced marriage of bees was practical in the hands of ordinary beekeepers?

Mr. Balch replied that he did not think that his hands were more than ordinarily skilful, and thought that it could be made practical. He had never failed in the experiment.

Mr. Porter wondered if this was not the true key to artificial fertilization.

Mr. Clement hoped that this might be more extensively tried.

At this point the secretary read the following communication from J. M. Marvin, of St. Charles, Ill., on the topic of "Queens and Queen-raising:"

Select each parent stock, with all the requisite conditions, or rear them to it, namely such numbers of the different ages as honey, pollen and watergatherers, and inside workers of wax and nurses.

Drone brood or eggs encourage queen raising. Changing some or all the combs, but the ones having the queen cells on, every three days or oftener, and thus keep the bees employed, so that no poison be given to the keeper or to the atmosphere surrounding the young bees.

Temper. The disposition should be mild; it denotes care in breeding. The stock should be handled with great care, not to arouse their anger, or let them pass beyond control, as it can be increased or diminished, at the will of the keeper, in the parent bees, and more especially in their offspring. The temper depends greatly on the keeper, in good seasons, if not more so than in poor ones, as they are apt to do more storing than is good for the breeding stock. At such times, if left to themselves, they generally renew their queens, and being full of stores, and nothing to do but defend their honey, a bad temper is increased.

Prolificness. This is a quality much desired, but is not utilized as yet, only to a limited extent. Some few abnormal cases are not prolific enough to keep up the strength of the stock, or suit the wants of the keeper; such queens may be removed, and a more prolific one substituted. By drawing combs of brood and eggs from a queen, it increases her energy and usefulness, if not carried too far.

Color. This is also at the control of the keeper. We will not enter in discussion as to whether light or dark bees are the purest, but a colony of light colored bees, that rival the sunshine, are things of beauty, and in my judgment detract nothing from longevity or usefulness, but otherwise are the more easily seen and handled than those resembling old comb in color.

Some remarks were made upon statements in the letters of Mr. Marvin by President Rood, C. I. Balch, Mr. Porter, and others.

Mr. King wanted the thoughts of others on how to make bees build straight combs.

Mr. Balch asked Mr. King what hive he used. Mr. King replied that he used the hive spoken of by Mr. Quinby in his work on bees.

Mr. Balch thought that Mr. King's difficulty might arise from not having the hive stand straight.

A sort of "experience meeting" talk was then indulged in by the members present on various topics relative to bee-culture, Mr. Bingham, of

Allegan, speaking at length on his experience in queen raising.

Succeeding this the association dissolved until 7.30 P. M.

Wednesday Evening Meeting.

Kalamazoo, *September* 9, 1872.

At the Bee-keepers' Convention this evening the secretary announced the subject of the evening's meeting for discussion to be "The Mortality among Bees during the Winter of 1871."

DYSENTERY IN BEES.

Before the discussion began, Mr. J. W. Porter, the secretary, read a letter upon this topic from Dr. G. Bohrer, of Alexandria, Ind., a copy of which we herewith print:

To the officers and members of the State Beekeepers Association.

Gentlemen:—At the request of your secretary I would submit the following, in regard to the prevalance of dysentery among bees during the past winter. The general causes giving rise to this affection among bees are sufficiently well understood by a large majority of apiarians, to render it unnecessary for me to give a description of them at this time, farther than to mention them in detail, if required, in demonstrating ordinary causes from which this malady are known to spring, had but little if anything to do with its origin among bees during the past winter in the United States and Canada; for it is well known that thousands of colonies, populous in numbers, well supplied with honey and in good winter quarters, perished despite every effort that could be brought to bear by the most experienced, most skilful and most industrious beekeepers of the country.

I am fully aware that it has been asserted by some that the recent great mortality among bees was due to the carelessness on the part of the beekeeper in not putting them into winter quarters at the proper season and in a proper manner. But inasmuch as I have conversed and corresponded with many relative to this matter, who have formerly been not only very attentive to the wants of their bees, but had also been eminently successful in wintering them, I think I have good grounds furnished me for concluding that such statements are (to use a new expression) simply too thin. Others have been disposed to attribute it to the extraordinary severity of the winter; but when we come to consider that the mercury often sinks lower in Canada than it did in this part of Indiana during last winter, and that bees nevertheless winter well even on the summer stand in that country, without any other protection than that furnished by the hive, we are at once lost in attempting to account for the late ravage of this disease in this way, as bees perished here, and even as far south as Tennessee, in large numbers. True, the apiaries in southern districts were not as nearly depopulated as they were here and in other districts of the North. But the inhabitants of each colony were reduced in numbers much below what they commonly have been, thus proving two things, first, that there was from some cause more than ordinary predisposition to dysentery, this being the universal complaint; and, secondly, that owing to the frequent opportunities afforded bees in Southern climates of flying out and discharging their excrement, this malady proved less fatal there than it did in sections where the excessive cold weather confined them to the hive for periods of time altogether beyond what they could endure in a diseased condition. From this standpoint it will be seen that cold weather had but one effect, which was that of rendering dysentery more fatal by confining the bees to the hive.

It will be out of the question to attribute the origin of this disease to an excess of atmospheric moisture, as it never was known to be dryer than it was last winter throughout the United States. Neither can we come out and occupy the ground that bees were put up into winter quarters without a proper amount of ventilation, for in this particular they fared as usual. But after searching in every quarter for the cause, I find nothing more than has heretofore been common until I came to examine the honey, which last fall presented no external evidence of its unfitness for bees to winter upon successfully. But as the time progressed a portion of it granulated and left a watery substance which run out of the cells, and down upon the bottom board, where it soured in many instances. Just what kind of honey it was I am not fully prepared to say, but as there were no flowers from which bees could collect honey last winter in one section, I suppose it to be honey dew they were collecting, as they came in heavily loaded every day for a week or more, yet I did not take it upon myself to search for this substance in the forests, and may have been mistaken, but don't think I was. After I saw it in the condition above described, I almost concluded that it was collected from grapes, but as there were not enough grapes in our parts to furnish so much honey, I fell back to honey dew. I have made inquiry of several persons who claimed to be acquainted with this substance, and find them laboring under the impression that bees will not winter well when confined to this material as food. I have also learned that honey dew last season was quite common in all sections where dysentery prevailed as an epidemic. If this information be correct, I think we have found out the true cause of this disease as prevailed last winter, and would therefore recommend to beekeepers the custom of emptying their combs with the extractor in September, and feeding sugar syrup in all cases where it is known that the hive is stored with honey dew. It will, however, be advisable to make haste slowly by ascertaining, as we go along, whether or not my conjectures are really correct as to honey dew being unfit for bees to subsist on over winter. A few colonies out of a large number set aside will be sufficient to test the matter in any one apiary.

G. Bohrer.

Alexandria, Madison County, Indiana.

DISCUSSION OF THE TOPIC.

Mr. Bingham, of Allegan, stated that he had found dead bees about his hives during the last winter. The honey produced by these bees was red and not of the best quality. This gentleman gave it as his opinion that it was owing to the severity of the winter that many of his bees came to die. By using great care he managed to save twenty-nine queens and bees enough to care for them.

President Rood stated that Prof. Cook wrote him during this mortality of bees asking what he should do to prevent their death. Mr. Rood stated that he advised Prof. Cook to scald the honey and thus free it from acidity. The remedy failed of effect.

Mr. Heddon, of Dowagiac, stated his experience in regard to the mortality of his bees during last winter. Mr. Heddon thinks the cause of death among them was old age. There was no sign of dysentery among his bees.

Mr. Bingham did not think that Mr. Heddon's theory in regard to the death of bees last winter was correct.

Mr. Everard, of Kalamazoo, stated that he had wintered the most of his bees successfully. Those that got fresh, pure air came out all right. Those that were kept low down in the cellar died largely. He attributed the death of his bees to want of pure ventilation.

William Campbell, of Royal Oak, said that he had bees die last winter of dysentery. Some old bees died in the comb. One cause of the death of bees was in his opinion the poor quality of the honey.

Mr. Porter read an article contributed by him to the Michigan Farmer, May 23d last, on this subject. He said he had reason to change his opinion in regard to some points in the article since writing the same; that the article did not fully express his present opinion on this important topic; but, in the main did. From some inquiries propounded to Mr. Porter he was led off into a long explanatory talk about the aphides, or plant lice, and as to their secreting honey dew, which the speaker said they did.

Mr. A. C. Balch, of Kalamazoo, stated that his experience was that bees did not want much ventilation. Last winter he lost only one swarm of bees. The cellar where they were kept was nearly air-tight.

Mr. Bingham asked Mr. Porter if the honey of Prof. Cook's apiary, of the Agricultural College, last fall, was of the ordinary color.

Mr. Porter responded in the affirmative, and that the honey was unusually good and was used in the college.

Mr. Balch said he did not believe that Mr. Heddon could give his bees dysentery by drumming.

Mr. Knapp asked Mr. Porter if he had seen bees gathering the honey dew, and received an affirmative reply.

Mr. Bingham wanted to know of Mr. Rood if he thought that scalding the honey would prevent the mortality. Mr. Rood responded in the negative.

Mr. Heddon, of Dowagiac, made some further remarks on the mortality question, stating his own practical experience on the subject.

Considerable discussion was indulged in by members of the association on the "old age" theory of Mr. Heddon, and upon various topics remote from the subject under discussion.

CLOSING SESSION.

At the session, Thursday morning, the Secretary read the following interesting letter from E. Gallup, of Orchard, Iowa, on the subject of "Hives."

The Hive Question.

By E. Gallup.

This is a knotty question to many a beginner in bee-keeping, and, in fact, it is not yet solved by many an old experienced beekeeper. It is a well known fact, that a natural swarm of bees will build comb, raise brood, store honey, and carry on their labors without any hive whatever during the entire summer. But in this case there is a constant guard or crust of bees surrounding the brood nest at all times and on all sides. During a storm this crust or guard is made very thick on the windward side. Now, in constructing a hive with this knowledge, we make the hive or the material out of which the hive is made, answer in place of this guard or crust of bees, thus allowing all this force to become outside laborers.

With the above facts in view, we formerly held that a compact hive of about 2000 cubic inches, with a further chance of contracting the size of the hive by the use of a movable division board, was the only real, practical hive that could be used; but when we came to use the extractor, we soon found that this room was all needed for brood; we now wanted hives of double the above capacity. The old plan of top boxes suggested a two-story hive, but this form of hive kept too many crust or guard bees at home, especially if the weather was a little cool. To make this perfectly plain, so as to be understood, suppose we use a hive two feet square and two feet high. We have a good strong stock of bees in this hive; it is filled with combs. The brood nest or comb containing the brood, is at the bottom, spread out horizontally, and 8 or 10 inches in height. (We do not wish to be understood as saying that it is always in this form, but simply for illustration.) Now, this brood nest is in the centre, consequently does not come near or approach the sides or top of the hive, and the consequence is, a constant guard or crust of bees has to be kept clustered around the brood nest on all sides, unless the weather is very warm, the same as there would have to be if this brood nest was suspended to a pole in the open air; that is, to a certain extent the above answers for an illustration. Now, if we can make a hive of the same capacity, but in a different form, so that the sides and top of the hive forms a crust around the brood nest, we have liberated so many of the bees that form this crust or guard, and the consequence is, more of the bees can go out as honey gatherers or water carriers, &c. To further illustrate this, we take the two-story hive or any tall hive filled with comb, with the brood nest in the lower apartment. In the heat of the day the bees occupy all parts of the hive, but at night, or on cool days, and especially mornings, there is a large, compact mass or crust of bees clustered just above the brood, in order to retain the necessary warmth below too, or for the development of the brood. Hence the reluctance in many cases and in many seasons, of bees taking possession of top boxes. They may, and frequently do, take possession in the heat of the day, but the nights are cool, or a change in the weather compels them to go below to protect their brood. But, says the advocate of the two-story hive, we compel the bees to take possession of the upper story, by placing a part of the brood in the upper story; yes, but at the same time you compel more bees to stay at home if the weather is somewhat cool, in order to guard this brood, thus losing their labors as outside workers. All will allow that a single-story hive is best in spring and fall. Now, if this is so, why not best at all times?

With our understanding of this matter, and that too without any prejudice or preconceived notions, we have become thoroughly convinced that a horizontal hive of some form *is* the best at all times, and if so, what form is the very best?

We have been experimenting, the past season, with two forms, and we are not yet prepared to render a judgment, which of the two is best. One is our large twin hive, and the other is the Adair form or New-Idea hive, containing the same combs or frames. We think that all will allow, that in a large yield of honey, we must have a large hive, and I have found that in such a hive, both the twin and the New-Idea

form, swarming is entirely prevented (that is, with proper management). The queen breeds more abundantly, and the stocks being larger, she breeds later in the fall, and consequently we have a larger amount of young bees to go through the winter. The late gathered honey is always better evaporated in a large stock than in a small one, unless the small one is condensed into a small compass. Also by a large horizontal hive, we always have a strong stock on hand to take advantage of the honey harvest when it does come. For illustration, the past spring in one large hive we had, when spring opened, at least 100 lbs. of surplus honey over and above what the bees had consumed during the winter; the weather continued unfavorable up to the first of July; no honey gathered at all, yet this stock had no fears of a famine, and kept on breeding, so that when the harvest did come they were in condition to store 160 lbs. in just eight days.

Now, providing they had all this honey taken away, and just given them enough to last from day to day of sealed honey, no such amount of brood would have been raised, and by the best of stimulating we could have done no better. In fact, in or with large hives our stocks are always in condition to take advantage of the harvest when it does come. The surplus left over can always be taken away when the harvest comes, whether that harvest comes early or late. With large hives and Italians, we have a perpetual stock, as they are sure to raise a new queen before the old one fails.

Mr. Bingham said that bees cannot be taught anything, and that they lacked brains. He thought that the idea of attributing reason to bees, as in Mr. Gallup's letter, was an erroneous idea.

Mr. Heddon thought that the condition of the interior of the hive was of the greatest importance. He said he used the Langstroth hive, and used his own frames in the upper section of the hive. Said he would like to receive the suggestion of any member as to a sure method of evaporating honey.

Mr. Bingham said that he had more honey gathered by a small nucleii than by a large swarm. Said it was more trouble to care for a large number of bees than a small number. The gentleman had much to say upon the relative merits of the Metcalf, Adair, and Gallup hives. He did not believe there was any practical use in raising bees after July 10th, in any year.

Mr. Heddon said that he believed that the beekeeper needed a hive adapted to extricating liquid or surplus honey.

Mr. Bingham said that he had 900 superficial inches of comb in his hives.

Mr. Langstroth's hives have 1,400 superficial inches of comb.

Mr. Heddon asked if the convention thought a queen could lay 3,000 eggs in 24 hours?

Mr. Rood said that Mr. Otis had found that a queen had laid 3,500 eggs in a single day.

Mr. A. C. Balch argued that the small hive is best; that there is room enough for cells. He believed the true policy for "slinging" was to place the frames upon the top of the hive rather than at the side.

At this point a suggestion was made that the association close up the business of the assembly, and in accordance with the above suggestion, Mr. A. C. Balch moved that a paper now on hand from "Novice" should be read, and that the election of officers for the ensuing year should follow such reading; the motion was supported, put by the president, and prevailed.

The secretary read the following communication of A. I Root, of Medina, Ohio ("Novice"), on "The Apiary and its Arrangements:"

The Apiary and its Arrangements.

To the President and Brother Beekeepers' of the Michigan Beekeepers' Association:

Years ago I remember to have heard a little fable, something in this wise: Once upon a time, in a certain garden, one of the shrubs was complaining in a dissatisfied way that it was neither tall and stately like the oak, nor fragrant like the rose, and, in short, that it was of no use in any way and did not see why it had been planted at all. To this a sprightly little Hearts Ease replied, nodding and smiling, that since the owner of the garden had seen fit to have *it* planted there, he probably wanted a Hearts Ease and nothing else in that very spot, and that it was determined accordingly to be the very best little Hearts Ease *that ever it could be.*

As the Association has seen fit to call for something from "Novice," we presume, of course, that they knew what they might expect, and so I have determined without further apology to give what aid I can to the bee-keeping world.

The amount of profit to be derived from our bees is in direct proportion to the amount of care we give them, and so many sad instances have I witnessed of disorder and neglect in the apiary, and even ofttimes in the apiaries of prominent and intelligent beekeepers, that I hope you will excuse me if I seem extravagant in what I advise.

To those who have, or contemplate having, one hive of bees or more, I would say, first, secure a clear spot of ground, gently sloping towards the south and east, and protected from the winds on the north and west by buildings or trees. When this plot is levelled off, no vegetation, not even a spear of grass an inch in height should be allowed to grow; in fact, we expect you to walk around your hives often enough to keep the soil hard and to prevent grass growing there.

When weeds appear, cut them off with a hoe, and bank up immediately around the hives with sawdust, and keep all litter and trash swept up so clean, that if a queen escapes from a hive, she cannot even find a place to hide or get lost.

The whole should be surrounded with a good fence, if possible, eight feet high, and tight on the north and west and close enough all around to perfectly exclude poultry, cats and dogs, and even children when they are inclined to be disorderly. (My "better half" here objected to that last item, and claims that "children are never disorderly when their mammas have the care of them, and that this 'fenced up' idea, when 'order reigns supreme,' with only men inside, is purely visionary, as every woman knows;" but, bless their hearts, I never meant to keep them out.)

In short, the ground should be sufficiently clean so that we can, at any time when weary, go down upon our knees beside a hive, and examine its contents at ease.

For shade, we would recommend the Concord grape vine, trained on such trellis as is described in "Fuller on the Grape." If the trellises run east and west, and are about eight feet apart, the hives can be placed on the north side, close to the trellis, and about six feet from each other.

The vines unfold their leaves just about the time

when shade is needed, and the leaves fall as soon in autumn as all the sun is needed again.

Before speaking of hives, excuse me if I again insist that no old broken hives or frames, no blocks, sticks, stones, or rubbish, shall be tolerated inside the enclosure at all; not even an unused queen cell shall be thrown on the ground, but all shall be kept like a tidy place of business, as we expect you to make this.

If you can stand it, please have but one kind of hive, and you will escape many perplexities.

The hive we approve of is so fully described in the *American Bee Journal*, for September, that we do not think best to take space for it here, more than to say, that both upper and lower story are one and the same, and the same with top and bottom.

The hive has but two parts, viz., body, cover or bottom, and these are so simple that any mechanic should be able to make them accurately to measure, so that any one fits anywhere, and the hives are all so precisely alike that neither the bees nor their owners know one from another except by locality.

If you wish to make the best per cent. on capital invested in this apiary, take our advice, and use the Extractor alone, and don't patter with boxes and comb honey, unless it is to test the matter yourself, and a very few experiments will be enough to convince you that selling the comb as soon as built, is as poor policy almost as keeping common bees in old-fashioned box-hives.

Again, make, or have made, an extractor just large enough to take in the frame you use, and have only the *frame* that carries the comb revolve, and not the whole can. A very short time will show any one the great amount of strength that is wasted in revolving at a high speed the can, honey and all.

There need be no argument on a matter when actual experiment is easily available, and the same will apply to box and extracted honey. Extracted honey is now quoted at from 16 to 20 cents in New York, and we believe a ready market is at last obtained for all that can be produced.

Make it a study in arranging the Extractor and all implements, to save all useless steps and to save all lifting and daubing utensils uselessly. Have the Extractor deliver the honey directly into the barrels, ready strained, and have your barrels tight and well waxed inside.

We have not space here to describe the house for wintering, located in the centre of the apiary, but will add that it is used as a honey house in the summer, it should be neatly and tastefully arranged, and so that everything may be kept scrupulously clean. In fact, we *must have* the ladies' assistance in this department for aught I see.

Are there many here that still feel that *wintering* is the great unsolved problem and cannot with us feel sure that so simple a thing as pure sugar syrup is all that is needed to prevent the dreaded disastrous repetition of last winter?

Well, wait and see, as ample experiments will decide the matter, I think, this coming winter, and those who prefer to act rather than wait, I most earnestly advise to get their feeding done and have the syrup sealed up during warm weather. With a quart of bees, and plenty of pure wholesome food (A coffee sugar we know, for instance, is pure), and a frost-proof house to winter in, I think a colony of bees is much less liable to be lost than farm stock generally, and, in regard to ventilation, I really do not think it worth troubling about if food be proper; that is, I would leave the same ventilation that they had in summer time and nothing more. Echo answers

"Nothing more," from

NOVICE.

Mr. Bingham thought there were some practical thoughts in "Novice's" letter. He thought chickens did no harm, as it was his experience that they killed miller moths. We have a right to be thankful to "Novice" in regard to his efforts in developing the art of "slinging" honey, and believe his plan of feeding bees to be a good one; it is feeding from the bottom of the hive.

Several other topics were discussed which were of interest to the members present, but of such a general nature they could not be properly reported.

ELECTION OF OFFICERS.

On motion of A. C. Balch, the convention proceeded to ballot for president of the association. President Rood made a few remarks thanking the association for the honor they had conferred upon him in the past, and declining to again hold the office.

The following named persons were elected as officers of the association for the ensuing year:

President—T. F. Bingham, Allegan.

Vice President—A. C. Balch, Kalamazoo.

Secretary—J. W. Porter, Ogden, Lenawee county.

Treasurer—H. A. Burch, South Haven.

Secretary Porter drew up the following resolution, and on motion of Mr. Heddon, the association adopted it:

To the Honorable Legislature of the State of Michigan:

Whereas, During the past year and previous years, the people of the State of Michigan have lost thousands of dollars from the ravages of insects upon fruits and grains; and

Whereas, Bee-keeping has become a prominent and growing pursuit in the States, and deserves the attention of scientific men; and,

Whereas, We, the Michigan Bee keepers' Association, believe it to be to the interests of the State at large, in promoting the interests in industrial pursuits, to have a State Entomologist, who shall make it his business to investigate and look after such interests:

Therefore Resolved, That we, the Michigan Bee-keepers' Association, do hereby petition the honorable Legislature to take under consideration the propriety of creating such an office, and we do unanimously recommend the same.

T. F. BINGHAM, President.

J. W. PORTER, Secretary.

Mr. Bingham was conducted to the chair and made some very sensible remarks, thanking the association for the honor conferred, and proceeded at once to the conduct of business.

Mr. Heddon, on request, made a statistical report on his bee-keeping, the amount of honey obtained, number of swarms, etc.

On motion of Mr. Ira Green, of Lapeer, a vote of thanks was given by the association to the gentlemen who have furnished papers for the edification of this association; and to Ezra Rood, late the acting officer of this meeting, for the able manner in which he has performed the duties of his office.

The association then adjourned to meet at the time and place of holding the next annual State Fair.

EDITOR AMERICAN BEE JOURNAL:—These communications were received after the meeting had adjourned *sine die*. Respectfully,

J. W. PORTER, *Secretary*.

On the Causes of Mortality among Bees in 1872.

Mr. Chairman, and members of the Michigan Bee-Keepers' Association:

When I accepted the invitation of your Secretary, Mr. Cook, to prepare a paper upon some topic in apiculture, I had but little doubt of being able to be present, and reading the same in person; but the duties of my calling direct me to Grand Rapids, instead of your favored spot of meeting, the village of shade and beauty, the bright Kalamazoo.

No subject in bee-keeping is so significant to the members of this association as the successful wintering of bees. This accomplished, and nothing will prevent the multiplication of swarms, until the tons of wasting sweets, now lost in the cells of the Flora of our State, will be gathered up to sweeten and gladden the life of man.

Each winter seems to develop some new danger, or challenge the experience of all that have preceded it; but the winter of 1871 and '72 stands unrivalled, and it would be hard to estimate in dollars the actual loss sustained by the beekeepers of our State. From every quarter, last spring, came the lamentation, "My pets are dead, and why did they die?" I am not self conceited enough to assume that I can tell all the reasons "why," as they were undoubtedly different in different localities. In some, the rain-fall was much more in quantity than others, and more timely, and the pasturage was different and differently affected by it. All these need to be considered with great care in arriving at conclusions. No one can cover the whole country unless he be as ubiquitous as Hamlet's ghost. I speak therefore from my standpoint of observation in the beautiful orchards of Benton Harbor. The loss of stocks in this region, in my judgment, resulted from the following causes: 1st. The age of the bees composing the swarms in the fall. 2d. Improper ventilation, and 3d. Prolonged and intense cold. These three causes deserve to be noticed separately, with such suggestions as to prevention as the case demands. Of the three, the first is, in my estimation, the principal; although I would not underrate the others. In the spring of 1871, all stocks of bees in this section were strong and vigorous. On the 10th of May, nearly all the hives were full of active workers; and when our apple, peach, cherry, and pear orchards brought forth their profusion of blossoms, the little "sweet loving" workers revelled in a perfect banquet of nectar and pollen. This over, and warm showers succeeded, and, with their enticing drops, soon coaxed the raspberry and blackberry to robe themselves in sheets of white and amber; and now our little industrious fellows were crazy with delight; they rollicked, and rolled, and rambled from early dawn until dewy eve, gathering honey and pollen, crowding every empty cell, and, in some instances, digging out the embryo drones, that they might have room to store their precious sweets. No sooner did a young bee emerge from the cell, than it was filled with honey by the overloaded workers standing by. This was continued throughout the season as the honey product was very great. The queen was narrowed down to a little space in which to deposit her eggs, and when winter came, with its long bitter cold, it found a hive nearly full of *old bees*, which would naturally die by the first of January or February. This they did, gradually dropping from the cluster until only a few bees were left. Few in number, they clustered closer and closer together, gorging themselves with honey to sustain life, which in some instances succeeded, only to die by debility when the warm breath of spring came to give them relief. Unable to generate animal heat, no brood was reared at the proper time to keep up the waste, and they must die. The above is based upon facts which are patent in my own experience, but I will mention only one as connected with the winter of '71 and '72. In July of '71 a vigorous swarm lost their queen, and for some reason failed to rear one. I neglected it, and did not observe its condition until the 15th of August. Some days after I secured a very fine Italian queen and gave her to the little bunch of motherless, despondent workers. She proved a very fertile hybrid, and soon there was heard the hum of joy among them. Until the setting in of winter the combs were full of brood. *From the hive not one pint* of dead bees were taken in the spring. On the 9th of June they swarmed. The remedy, therefore, for all the above difficulty is very simple: 1st. Use the Honey Extractor judiciously, so that the queen may have room for her larva. 2d. Divide in the fall, after Mr. Hosmer's plan, and keep them rearing brood all winter. 3d. Take away the queen and a small number of bees, after the honey harvest is past, and compel them to rear a young one, or return the old as you see fit, about the middle of September. The second cause—that of improper ventilation—unquestionably resulted in the death of very many which would not have died from the first I have mentioned. The indifference with which this is treated cannot be too severely condemned. Very many in this day of advancement in bee-culture, still cling to the old box, or gum, and no argument can drive them from their use. Their fathers kept bees so and why should not they? They are as perverse as the Dutchman who would carry a stone in one end of the bag and wheat in the other. Now, talk to them about ventilation, and they will insist that the *instinct* of the bee is the only safe guide. And do they not stop every crack and crevice in the top of the hive or gum with propolis? Yes, and often kill the whole swarm by it; just as they build by instinct the honeyed dome around them, and die for the want of room in which to rear their young. There must be absorbents placed in the top of the hive, to take up the moisture, or else a form of ventilation that will allow it to pass off. A failure to do this will envelope the whole swarm in the colder days of winter in a crystal cave whose walls are ice and frost. If the cold is intense and prolonged, the ice will gather around the entrance until air is excluded, and then they perish soon with suffocation or sweating. Out of thirteen hives wintered on their summer stands with dry corn cobs for absorbents placed over the frames, only one died. All the rest came through in fine condition. Many a farmer who joins bee-keeping (not bee-culture) with his other labors, will persistently neglect this matter of ventilation under the plea "of want of time," but will spend double the amount necessary nursing a little scab-nosed sheep. "Penny wise and pound foolish." But I must consider the last: Prolonged, and intense cold. Bees were confined in this vicinity from the 20th of October until the later days of March. During a large portion of this time the thermometer ranged from 8 degrees above to 12 degrees below zero. This, with the sudden changes which frequently occurred, produced great sweating and frosting of the combs. All the uncapped honey drew moisture, became thin and watery, and unwholesome; that which was capped and well preserved was so covered with frost that it was beyond their reach, and they were forced to eat the thin, watery food produced by this condition of things. Is it a wonder they died? I know of no remedy for all this except well-

built houses for wintering purposes, and throwing out the uncapped honey with the Extractor in the fall.

J. G. PORTMAN.

Benton Harbor, Michigan.

What is the Cause of the great Mortality among the Bees?

It is well understood among beekeepers, that the above is the great question just now; and yet, in my humble opinion, none have been able to answer it; neither am I prepared to do so. I purpose, however, to show that the theories put forth as to the disease and the cause, will not stand the test of careful examination. I have received many letters asking for papers on the subject, but to one and all, I have replied that I was not prepared to say anything about it, until full reports were received from all the affected districts, both in Canada and in the United States. These reports are now before me, and after careful examination, I have arrived at the above conclusion—that no one has or can answer the question at present.

That bees have died during the past winter and this spring up till the present time throughout the greater part of Canada and the United States, is a fact that nearly every beekeeper can attest. So fearful has been the disease, that in some large districts every bee has died, and that, too, under the most favorable conditions. Large apiaries of seventy-five and a hundred stocks have entirely perished. The like has never before been known. After careful examination of all the reports, I am fully convinced that bees have suffered from some epidemic or fearful disease unknown to apiculturists, which is causing far greater mortality than that so much dreaded disease, "foul brood."

For the last four years there have been complaints of a great mortality among the bees in certain districts in the United States. In Canada, too, we have noted the same, but not to so great an extent; yet it has been increasing every season, and last season in many sections nine-tenths of the bees died. What can be the cause of this great mortality? Mrs. Tupper, a noted beekeeper of Iowa, says in answer to the question, "that bees have died of too much honey," which she accounts for in this way: The honey harvest was very abundant last fall, and the bees gathering largely, all the breeding cells were filled up; the consequence was, that breeding ceased; hence, all the bees that went into winter quarters were old bees which have gradually died, and, before it was time for breeding to commence this spring to any extent, the stock became so depopulated, that breeding was not induced, and the stocks perished.

Now, it may have been the case, and doubtless was, in the vicinity where Mrs. Tupper resides, that bees gathered largely late in the fall, but in other localities such was not the case, and still the bees died, hence that cannot be the cause. Another claims that it is the result of introducing Italian bees; but it so happens that all the hybrid stocks are the last to die; and not only so, but in sections where no Italians have been introduced, the native or common bees have died fearfully. Another writer for the *National Bee Journal* says, that the honey gathered in the fall was thin and watery, much of which was not capped over; this soured, and being used for food by the bees, produced the disease; but unfortunately for him, in Canada, especially in this section, there was no thin honey gathered in the fall, and all honey was capped over, yet nine-tenths of the bees are dead, and still dying. Several other writers claim that it is for want of bee bread; that they failed to gather in a supply; yet there is no reason why they should not have gathered just as much bee bread last season as in any other season; for, surely, last season was not so unlike all other seasons in the past, that bees should have failed to gather sufficient bee bread, which they never could have failed to do before; for if they had, the mortality would have been the same as now; but the truth is, bees have died with plenty of bee bread and honey. Others, again, argue that the winter has been unusually severe; but we know that it has not been more severe than many winters in the past when there was no such mortality among bees; not only so, but the reports show that bees wintered in good dry cellars have died equally with those wintered on their summer stands. Others, again, say that from some cause the queens ceased breeding early in the season, and consequently stocks became depopulated, until not enough of bees were left to keep up sufficient animal heat. But why has such a case never occurred before? Why have all the queens waited for the fall of 1871 in which to cease laying in a manner they have never done before? The truth is, however, that stocks have died this spring after the queens were breeding all right, and even after the severe cold weather was past, and with plenty of honey in the hives. In fact, in this section the honey gathered last season was of the best quality, as but little honey was gathered after the white clover harvest was over. The hives were well filled, and in most instances the stocks that perished had an abundance of honey.

I find also from reports received from Cape Breton and the eastern part of Canada, that in most cases the bees had an abundance of honey, and were capped over, yet the mortality was fearful. One gentleman writing me, says: "I think there are not over four stocks alive out of every hundred. I lost my entire apiary, consisting of eighty stocks, although my bees were in good condition apparently, and wintered in the same manner as I have wintered for years. I fully agree with you that it must be some dreadful disease among the bees." Mr. Thos. C. Hill, attorney at law of Sidney, Cape Breton, who was the first to introduce bees into that island, says: "My bees are all dead. I was not aware that others had suffered like myself, until I saw your account of it. I wintered my stocks in the usual manner, and they were well supplied with honey."

With the above facts before me, I am satisfied that no one has been able to correctly answer the question, while I am forced to believe that bees have suffered from some plague or terrible disease, in a manner similar to epidemics among other animals.

I am, however, inclined to believe it has reached its height, and will gradually disappear.

Brooklin, Ontario. J. H. THOMAS.

[For the American Bee Journal.]

Bee-keeping at Hartford, New York.

DEAR JOURNAL:—For some unknown reason, Uncle Sam failed to deliver my Journals in regular order for a few months last winter and spring, and I thought I would give up taking it; but after missing its welcome visits for several months, I am again made happy by receiving the back numbers, and though I take other bee papers, I will not dispense with the Journal again, unless Uncle Sam fails me entirely.

I find in it a freedom of discussion of bee interests which I cannot find in journals devoted to the advancement of their own patent hive interests; and as long as the Journal keeps itself free from bee-hive patent-right-ism it will be looked up to as standard authority, and its circu

lation will increase with the progress of bee-keeping.

In speaking of patent hives, I have used several kinds, and from my experience and observation, I find there is no hive better than the Langstroth, or Novice's simplification of it, and to those who are seeking for simplicity in construction, ease in manipulation, that description is alone worth a year's subscription to the Journal. Should the beekeeper desire to obtain his surplus honey in the comb, sets of small frames can be suspended in the upper story.

With a very simple entrance, one can admit the bees parallel with the combs, or broadside or "*vice versa*," thus reaping all of the advantages of Adair's system of giving plenty of room near the entrance. So here we have a genuine revolvable-reversible hive, invented by Novice.

I shall not agree with Novice in relation to brood in deep frames; my frames are 14 inches in depth, and are invariably filled to the very lowest cell with brood, the upper edge being filled with honey.

In common with hundreds of beekeepers in all parts of the country, I lost several swarms—13 out of 25, and the remainder doubled themselves down to 5, and if any one ever felt like getting into a hole and hiding, I did, for several days last spring. New-fangled hives and book "larnin" was the cause; but a comparison of notes showed as great a loss in box hives as in any other.

When I looked over my deserted hives and saw the pile of beautiful worker combs, my heart was wrung with unutterable anguish at the idea of melting them up for a few pounds of wax.

I luckily found 7 swarms for sale for $30, and took possession of them. I now have 25, and will make $200 from them, and would have doubled that, if basswood had done the fair thing.

I attribute a portion of my loss last winter to a too free use of the extractor; this season I have adopted a rule not to empty any comb in which there is brood; as a consequence, all of my swarms have plenty of honey and some to spare. In the foregoing, I have reported a dark side to the avocation of bee-keeping, but though cast down, we are not disheartened, and hope to go into winter quarters 30 swarms strong.

SCIENTIFIC.

[For the American Bee Journal.]

Success in Bee-keeping.

MR. EDITOR:—The experiments and observation of twelve years in bee-keeping, prepare me to assert confidently that every farmer with 100 acres of land, may secure annually, from 100 pounds to 200 pounds of honey in boxes of convenient size, for use or market, if he has a fair amount of white clover in his fields, and raises a few acres of buckwheat.

This, on the supposition, that the orchard and early spring flowers give opportunity for an early start of the workers in the spring.

Expense.—The first season will require an expense of $4 or $5 for a hive and sample box, or $7 or $8 for a hive and boxes to contain 200 pounds of surplus honey, and from $5 to $10, for a colony of bees. That is from $10 to $18 the first season, and nothing but a little care and attention after; securing, at 25 cts. per pound, from $25 to $50 in surplus annually, for ten, twenty, and some colonies have exceeded thirty years, without any change of colony or comb.

Every town six miles square, contains 230 and 4 10 hundredth acre lots. One colony upon each hundred acre lot would give in surplus, at this rate, from 23,000 to 46,000 pounds of honey per annum, at 25 cts. per pound, would be $5,750 to $11,500 per annum.

This income might be secured; in some towns more, and in some less, according to the season, or the amount of honey-producing flowers.

But 230 farms of 100 acres each, with 230 farmers, one upon each hundred acres, will hardly be found in one town. One farmer has 20, another 100, and another 300 or 400 acres. Many farmers take no interest in bee-keeping. Then let us make another suggestion. Let a judicious, active man, or a number of such men associate, and by agreement among themselves and the proprietors of the soil, place 36 apiaries, with four, five, or six colonies, or more, in each apiary, according to the abundance of honey producing flowers upon each square mile; this will bring each apiary about one mile distant from the other, giving them half-a-mile's flight in each direction, and sufficiently distant from each other to prevent robbing, and to gather the honey secreted by the flowers. If the danger of swarming is obviated, as I think it may be, a visit to each apiary once a week, to note their progress, is all that is required, until the time for the removal of the boxes, and with the box room for 200 pounds of surplus, probably but one removal will be required for the season. Two weeks' time in the spring and two in the fall may be all that would be required for the whole number of apiaries. Eleven thousand, five thousand, or even one thousand dollars will pay for that.

But this is after all is put in operation; how shall we begin?

1. Procure a hive with a breeding and wintering apartment of about 2 00 cubic inches, and surplus honey boxes that will hold from 100 to 200 pounds.

2. Procure as many colonies of bees as you wish to commence the trial with, equalling your number of new hives. Get large colonies early in the season. Place your bees where you wish your new hives to stand.

3. When a swarm issues, hive it in your new hive, and remove the old hive from its stand, placing the new swarm upon the old stand.

4. Cut out all the worker brood comb from the old hive. Place it in a box and set it close by the entrance to the new hive. The bees will hatch out all the brood. They will enter the new hive as fast as hatched out, and thus make a very large colony the first season, probably giving from 100 to 200 pounds of box honey the first season.

5. Or, if preferred, movable combs may be used, and the combs be cut out and placed in the frames, and placed in the new hive, and the whole colony be thus transferred. But probably few farmers would wish thus to engage in transferring stocks, or using the comb frames after they are transferred. But either plan may be adopted, and hives may be made with either the frames or bars, as thought most desirable.

The result the first season must depend upon the strength of the colony in the early part of the season. When the number of colonies suited to the production of the field is acquired, little further care is required, but to place the boxes in the hive early in the season, and remove them when filled and capped.

I am so confident that this is the true road to the greatest success in securing honey in the greatest amount, at the least trouble and expense, that I feel an interest in its general adoption. JASPER HAZEN.

Albany, N. Y.

[For the American Bee Journal.]

Bees at Blue Knob, Pennsylvania.

MR. EDITOR—As I have not seen anything from this section in regard to bee-keeping, I will drop you a line. There are no extensive beekeepers in this vicinity, but people are beginning to awake in the interest of bee-keeping. A number of persons about here are adopting the movable comb hives, mostly Langstroth. A great many bees died last winter. I saved seven out of twenty-one, and some of them came out very weak in the spring. I had seventeen in a bee house, and four on the summer stands, and those on the summer stands all died.

Bees did not swarm much about here this season on account of their being so weak in the spring. I made three artificial swarms, and introduced three Italian queens in the hives from which I took out the swarms. They are the only Italian bees within five miles around. I got them from Mr. H. Alley, of Massachusetts, and they are doing very well so far.

Our bees did not get much honey until the buckwheat commenced to blossom, then they commenced in real earnest, and one swarm in a double Langstroth hive, on which I used the extractor, gathered sixty-six pounds of buckwheat honey—an insignificant amount, as compared to Novice and Gallup's bees, but it is considered good about here. But some of our old fogy neighbors think the bees spoil the buckwheat. In a conversation with a man the other day, I said the bees done pretty well on the buckwheat. "Yes," said he, "it cost many a bushel of buckwheat, too." I told him I did not think the bees hurt the buckwheat any. "Yes," said he, "I am confident they do, because that honey in the blossom is intended for the grain, and, of course, if the bees take it out, the grain suffers in consequence," and as I know very little of botany, I could not argue him out of that notion. AARON DIEHL

Blue Knob, Blair County, Pa., Sept. 24, 1872.

[For the American Bee Journal.]

Chips from "Sweet Home."

MR. EDITOR:—This means every reader of that old stand-by, the American Bee Journal. Our honey season is nearing its close. Linn and white clover was almost an entire failure. Bees gathered freely from shoemake, but it was quite strong, and, like strong butter, lasted well when used on the table. But we have received a bountiful supply from autumn blossoms, which grow abundant on the bottoms of the Mississippi. Fully one-half of bees died in this vicinity last winter; we lost one-sixth. In five miles last fall we numbered about 500 hives. I am located in the heart of this honey region.

Box honey will be almost an entire failure in some places, owing to the coolness of the weather preventing comb building. Honey slinging hives have done well. Our slinger is just what we want, except that it is not large enough to hold sufficient honey underneath the frame.

BEE HOUSE.

Ours is 8 by 16, should be 12 by 16. We use it for a shop and slinging honey. It has a door at the south end, and a *revolving* window on each side. It revolves on two pins, and is just the thing. When bees follow us in, or get in, which they will do, they will fly to the window, when we quickly reverse the window, and our thieves are easily put out.

LORD AND PALMER.

New Boston, Ill., Sept. 21, 1872.

[For the American Bee Journal.]

Novice's New Hive.

After an experience of four years, with practically the same box, I can endorse all Novice says about his new hive without top or bottom. The coming hive must be large enough to contain all a swarm can fill for a season without swarming, and have a movable board inside, to enlarge or contract at pleasure. In spring, the young bees or brood nest is always in form of a ball, always enlarging as the stock increases. I allow no more combs than the bees can cover, and add the combs or frames so as to keep this ball in centre of hive, with frames for storing surplus above and on sides. In very strong stocks, some of the choicest honey will be stored in lower story, even down to bottom.

The fewer partitions or other obstructions between the upper and lower story the better.

As soon as pasturage fails from frost or drouth, remove the queen with brood combs, and bees enough to protect them, and destroy the balance. My first object is to produce all the honey I can, and then save as large a percentage for market as possible. Thus I have almost all young bees for winter stock. Why feed old bees all winter that will die of old age before they are wanted to gather honey next season? If increase of stock is wanted by having extra queens raised in nuclei on hand, you can make all you see fit. In

a poor season for pasturage, this hive will be no better than any other.

Bees in Greeley have done remarkably well this season. Two swarms managed as above, in part, have increased to eleven (11), with two swarms gone off in June for want of room (into the desert and probably perished), and yielded a surplus of one hundred and fifty pounds (150 lbs.)

The first honey produced in Greeley was of inferior quality. But with irrigation came buckwheat, white clover, and various other honey producing plants, until honey is now nearly as good as in Eastern States.

Our dry, clear atmosphere makes the flowers rich in honey and seed.

A bee farm of ten acres in white clover, stocked with cows, would make another Palestine flowing with milk and honey. When we get our clover patches fully developed, and Novice's new hive, full of combs in both stories, we of Greeley will astonish the world with the production of honey.

Have seen no moths this season, or maggots.

WM. MCCLELLAN.

Greeley, Colorado, Sept. 18, 1872.

[For the American Bee Journal.]

Loss of Bees in 1872.

BY M. QUINBY.

More bees have perished in the Middle and Northern States, during the winter and spring of '72, than in any one year in 40 years before. A calamity that was so universal requires close scrutiny into the causes that seem to produce it. Among those assigned, dysentery appears to be the first great cause. When the cause of dysentery can be shown, there will be much gained towards a preventive or cure. I think I am prepared to show this cause. I have been obtaining statistics for months, and find the loss of bees attributed to starvation, old bees, desertion, unsealed honey, as well as dysentery. I would suggest those cold west winds, that continued for months with hardly an intermission, as a great promoting cause, all others as secondary.

Of our own bees, we lost heavily. We started with near 240. About 70 were in the common movable comb hive (such as is described in "Bee-keeping Explained)." A part, perhaps 20, were in straw hives, made like the board hive. The 70 were put in a barn cellar, where 200, 100, and a less number had frequently been wintered with the best results. Those in straw hives were, with one or two exceptions, in good condition in the spring. Those in board hives, with a small colony of bees, actually starved with honey in the hive. They were often between three or four combs on one side of the hive. When the honey in the combs where the bees were was consumed, they were too cold to remove to the other side for more, and starved. A *few* bees in the centre combs were apt to consume too much honey in the endeavor to keep warm; were affected with dysentery and left the hive; a few going at a time. Very heavy hives, with a moderate colony of bees, were affected in a similar way. It was only the strongest swarms, with a proper quantity of honey, that maintained the right temperature. The greater number of our bees were in the open air, in our new hive standing near the earth. They were packed on every side, as well as the top, with cut straw of several inches in thickness, ventilated at bottom, but not at top, except what would pass through the straw. Only the strongest ones in this situation passed the winter safely. I consider this the best arrangement for wintering bees that I ever devised. Yet an ordinary weak swarm could not generate warmth fast enough to expel the frost that would penetrate continually till the bees were effectually chilled.

When we look for the causes of dysentery, and find it in the cold weather, it is not the effect of a few days of extreme severity, but of protracted cold, that keeps the whole colony in a semi-torpid state. It would seem to be shown in the following cases: Within a few miles of us I examined two apiaries that stood within half a mile of each other the year previous. Both lots must, of course, have gathered their stores from the same field, making the honey of one quality. About 60 in each lot. Each were set close together for winter, and straw packed closely about them on every side but the front, that the sun might warm them somewhat whenever it shone. One yard was protected by surrounding hills from all prevailing winds, and wintered with comparatively small loss. Combs clear and bees healthy. The other yard was at the north end of an exceedingly abrupt and high range of hills, where strong westerly winds swept by unceasingly for nearly three months. The bees became chilled, and remained so without an effectual warming, even for a day. They gorged themselves with honey; had no opportunity to fly and avoid excrement, and it accumulated till their bodies would no longer contain it, and the moment a bee left the cluster in the hive—and many of them before—it was discharged. In most cases, when a few bees were left at the close of cold weather, they were too badly smeared to be of any value. Other corroborative testimony may be given. A gentleman offered 70 hives at auction. They had been left on their summer stands, and were in the old box hive. Half were new colonies. Between the day of advertising and day of sale, he found 20 of the young swarms dead. These bees were unprotected, except by buildings that surrounded part of them. The dwelling was perhaps 60 feet long, and stood north and south. The road, 30 feet in front, ran in the same direction. At the north end was a wood-house and other buildings, forming a complete break for all the winds in that direction. Between the house door and yard fence were two rows of hives, and one row extended beyond the south end of the house 40 feet. These bees suffered just in proportion as they were exposed to the wind. Those wholly unprotected by the house were all dead first. As the rows were followed to the north end, some were found alive. The last 8 or 10 were all alive, though reduced in numbers. They were besmeared just in proportion as they were out of the wind. There

was not a No. 1 stock in the lot, and only about a dozen able to recover. I examined all carefully, and have described minutely, because it seemed that here was a chance to study causes and their effects. If we want to avoid dysentery, we ought to understand what produces it. Bees have dysentery without standing exposed to the wind. If in the sun, they soil the hive and combs much less. When the sun shines, the bee that leaves the cluster to discharge its fæces is generally kept warm enough to get away from the hive before soiling it, but they are chilled before they get back to it.

Giles B. Avery, of Albany county, reports more accurately than many others. After describing the house for the bees in winter, which was made specially for them, he tells us (see American Bee Journal for May, 1872, page 264) that 60 colonies were put in the room. The temperature of the house ranged from 25 to 40 degrees; most of the time stood quite evenly at 36 degrees. Bees were put in the middle of November, and remained till April 5th, at which time only 14 colonies were living, most of them having died, apparently, with dysentery. He then asks, Did these bees require more vent, or were they too cold? Here we have a case where bees had been successfully wintered, probably many times, and now for the first time badly affected. A strong colony of bees is capable of generating heat fast enough to drive out for a time almost any degree of cold. When a large number are in one room, they assist each other to raise the temperature. But when the cold is protracted beyond certain limits, say two or three months, the amount of honey consumed to resist it will accumulate in the body, improperly digested, till it cannot be contained. Hence, dysentery, even in the house.

"Why do some colonies in the same apiary show this disease, when others do not, while exposed to the same cold?" It may be explained in this way: It is known that bees must pack closely, in cold weather, for mutual warmth.

Examine the condition of those that winter best, you will always find a space usually in the centre of the combs from which brood have hatched, such combs are near half an inch apart; most of the cells are empty. The bees will creep into these cells, beside being three or four deep between the combs, the best situation to keep warm. Examine the surplus box that has been filled during a bounteous yield of honey, there is only a quarter inch space between the combs, and room for only one bee to get through. When a hive is filled like this box, how many bees could creep between the combs? and how long could they be kept from dysentery at the temperature of 35 or 40 degrees?

We can produce dysentery in a few minutes by cold. Try the experiment some frosty morning, when the weather is just cold enough to chill a single bee and not freeze it, when exposed outside the hive. Disturb a thrifty stock, and have the bees fill themselves, and afterwards scatter a few in the open air, nearly everything they alight upon will be soiled. It is impossible to have every hive in just the right condition of honey and dry combs. In a large apiary, some will probably have too much honey—if the yield has been fair—and we must expect some will show it.

A few bees were found that were successfully wintered, showing still further that this theory is correct. Mr. Floyd, of this county, in one of over 50 stocks, lost but two. Mr. Burklin, in Herkimer county, lost but about half a dozen out of 200. Mr. Ford, also of Herkimer county, lost less than 20 in 300. In every instance, where less than 80 were successfully wintered, they had the benefit of artificial heat. There was a fire kept in the room above, or adjoining the one in which the bees were kept. In most cases in the cellar, directly under the living room, where there was a constant fire.

Stocks that are queenless, or destitute of stores, &c., I have said nothing about, as they would need some other treatment. A physician that has a correct diagnosis of his patient's case, has him already half cured. If we have a correct theory of dysentery, the cure or preventive will probably suggest itself. Watch the weather, if too cold, make them warmer.

[For the American Bee Journal.]

Bees not Working in Boxes.

MR. EDITOR:—I cannot get any of my stocks to work in boxes this season—here it is the middle of July, and I have not got a single box of honey yet. It cannot be for the want of forage, for there has been plenty from the first of June until now. White clover began to bloom about the middle of June, and there is just as much now as there was then, and there was an abundance of bloom on linden, catnip, &c., which was crowded from morning till night.

On the 17th of this month, I opened a hive to arrange for putting on side boxes (I thought I would try them, as the bees would not work alone), and found every comb, except about three inches square in each comb which had brood in, filled up with the nicest honey I ever saw. This would do very well to sell if it were not for the brood.

This is the condition of most of my stocks, and I was compelled to send for an extractor, for if I do not take the honey from these hives, there will not be a young bee in the hive in a month, as the queens are almost completely crowded out. Can any one tell me the reason why the bees would not work in the boxes?

If it had only been so with some of them I would not have thought anything about it, but it seems that every stock in the apiary have caught the contagion of working in the body of the hive. They will work in small frames, put in the body of the hive (like the Buckeye), but the queen lays on them as well as the large frames, so I am just as bad off as ever. The boxes were all glass, and were put on about the last of May. The glass is no objection, as I have had no trouble before.

C. E. WIDENER.

Cumberland, Md., July 19, 1872.

THE AMERICAN BEE JOURNAL.

Washington, November, 1872.

The delay in the October number of the Journal was caused by the failure to receive the expected contribution of one of our most valued contributors.

We have given considerable space in this month's Journal to the proceedings of the Michigan Beekeepers' Association, thereby throwing over, until next month, several valuable communications. The articles of Novice, Gallup, Marvin, and Thomas, written for the Michigan Beekeepers' Association, will be read with interest and profit.

Our thanks are due to Mr. Porter, Secretary of the Association, for the prompt and accurate report of the proceedings which he has furnished to the readers of the Journal.

We wish to call the attention of many of our subscribers to the fact that they are in arrears in the payment of their subscriptions. This may in some measure be owing to ourselves. In June last we stated that we would, during that month, send bills to all in arrearages. But we were unable to do so. Other pressing and necessary duties prevented then, and have still prevented us, from doing what we promised. We have barely had the leisure to attend to preparing copy for press and mailing the Journals. As we pay cash for all we have done, we must expect our subscribers to do likewise. We trust that all who wish to continue subscribers to the Journal, will during the next month send what is due us. Send your money by post office order, or draft on New York, rather than by simply enclosing the money in an envelope; it may arrive safely, but there is a chance of its being lost.

We have received Adair's Annals of Bee-culture. 1872. Louisville, Ky.

Mr. Adair deserves great credit, as well as success, for his earnest efforts to give to beekeepers, at the end of eacff year, a careful review of the progress made during the year in bee-culture. He has enlisted in his aid, such able writers as Rev. W. F. Clarke, Prof. A. J. Cook, M. Quinby, Esq., "Novice," Dr. E. Parmley, Dr. Jewell Davis, E. Gallup, and A. S. Packard, Jr., M. D.

These names are sufficient guarantee of the value of the work. It is well printed on good paper, and well bound. We trust, the beekeepers of this country will encourage him in his efforts in this direction, and that the Annals of Bee-culture may be considered a permanent work. Price, 50 cts. per copy. Address, Col. D. L. Adair, Hawesville, Ky.

We return thanks to the Commissioner of Agriculture for an early copy of his Annual Report. Under the efficient management of Commissioner Watts, the Reports are no longer a year behind hand, but are issued promptly.

Transactions of the North American Beekeepers' Society, at Cleveland, December 6–8, 1871.

At last we have the proceedings. It fills a pamphlet of 53 pages. All beekeepers who are interested in the proceedings of these associations—and there are few who are not—should obtain a copy. Price. 50 cts. per copy. Published at Indianapolis, Indiana

CORRESPONDENCE.

My bees are now doing well from smart weed and buckwheat. Yours, &c.,

E. LISTON.

Virgil City, Mo., Sept. 17, 18 2.

We shall never try to get along without the Journal as long as we can raise two dollars. The past season here has not been extra good, although August and September were extra good, and our stocks are all in fine train for winter. We shall winter on their summer stands, and should we live till spring, will report the average consumption of honey, and all other particulars.

J. BUTLER.

Jackson, Mich., Oct. 2, 1872.

This has been a poor season for bees in Erie county, New York. The drouth has prevented their gathering much surplus honey. Mine have done well. People say to me, "I have such bad luck with my bees. I don't see how you get along so well." I tell them I take the American Bee Journal, and there's where the luck lies. There are three requisites to successful bee-culture: the Italian bee, the Langstroth hive, and the AMERICAN BEE JOURNAL; and may they all exist as long as bees gather honey.

MRS. W. H.

West Hamburg, Erie Co., N. Y., Sept. 23, 1872.

I like your journal the best of any that is printed. I will stick to it. I have raised 3,000 pounds of honey this year. Over 2,700 pounds I took to New York last month. I lost some thirty hives last spring. I have some eighty stocks in good condition as far as honey is concerned. Most of my honey was made in two weeks in August, on buckwheat. I think it has been a pretty poor season here. Those who had box hives did not get but little honey. I had two hives that averaged over 100 pounds apiece, which was good for this section and season. I mean to learn all I can.

BENJ. FRANKLIN.

Franklinton, Schoharie Co., N. Y., Oct. 5, 1872.

This year has been a bad one for surplus honey. From twenty-two swarms and their increase, eleven, I have taken one hundred and three boxes—about 600 pounds—besides eighteen boxes—108 pounds—stolen, which I fancy is about as well as any one has done this season. I made my swarms one from two by division. Will you give me your opinion of wintering

bees under ground, on the Scholtz plan, mentioned by Langstroth, in the concluding pages of his work? I think I will try it. I have made my pit twenty-four feet long, and covered it with boards, ready to put on straw and dirt, and fix my ventilating tubes, one 3 inches and one 2 inches, and dug a trench the whole length. Would you advise me to risk all my bees in such a receptacle? I tried the cellar last winter, and found it too warm.

CHAS. D. HIBBARD.

Auburn, N. Y., Oct. 9, 1872.

Our winter was very hard on bees here, and the number of stocks is much reduced, as swarms this summer have been very scarce; but thanks to Messrs. Root, Gallup, Grimm, Alley and many others, I have succeeded in getting about 900 pounds with the extractor. I find, as Mr. Root describes, that the queens lay rather too freely in my upper hive. With best wishes for the success of the American Bee Journal, I remain yours respectfully,

FRED. GEO. NASH.

Niagara, Ontario, Sept. 16, 1872.

Nearly half of the stocks of bees in this section of country perished with that bee disease. I lost two out of ten, and a neighbor in box hives twenty-six out of twenty-nine. And most stocks that survived were so weak that they were not in condition to gather the first half of the crop of white clover honey, and as the drouth made a short season, our honey yield is small. Mine averaged about 35 pounds for the eight swarms, but two have failed to do anything for me. Average for the six that done the storing in boxes, about 46¾ pounds, one of them, 75 pounds. In hope of doing 100 per cent. better next season, and a big hurrah for the American Bee Journal and progressive beekeeping, I am truly yours,

A. W. DAVIS.

Walworth, Walworth Co., Wis., Sept. 18, 1872.

[For the American Bee Journal.]

The October Journal.

Although the October number has come to hand unusually late, we will try and send a few "remarks" thereon, as many of our readers have encouraged us in these efforts, by their many kind and complimentary letters, for which they will please accept our grateful thanks. It is our desire to add our mite to the general fund of apiarian knowledge, if, by so doing, we can be of service to the bee-keeping public. Had we as much leisure time as some writers seem to have, we are sure that these articles would be more entertaining, and far more than they now are. As it now is, we have so much to do that the "wee small hours of the morning" oftentimes find our tasks uncompleted.

This time, friend Novice, with his smiling countenance, stands at the head of the list, a place he fills with becoming propriety. It seems that his wholesale bee-feeder does not "work to a charm." However, we think Novice equal to the "situation," and trust he may yet succeed. His experience with the sugar and wax in comb-building is very much like our own. Has any one succeeded with *any* device for getting artificial comb of practical value? We know of none except Mr. Quinby's tin combs, but they are very expensive, and their practical utility has not been fully established, we believe. At one time we had strong hopes of the value of the patent comb foundations; but they have utterly failed with us. Instead of going to work and lengthening out the cells, as obedient servants should, the foolish creatures will persist in tearing down the "foundation," and rearing one of their own.

But we pass on to see Gallup prepare his hives for out-door wintering. We know by sorry past experience that he is correct, and that bees *do* need upward ventilation in winter, some of the rest of mankind to the contrary, notwithstanding. Nor did we get our knowledge and opinions from book theories, as a certain party whom we might name has intimated. We had the same opinions in regard to upward ventilation *before* we ever read a book or paper devoted to bee-culture. We, in common with very many others, would like to know why one of the chief supporters of the no-ventilation *theory* did not answer Mrs. Tupper's questions addressed to him in the BEE KEEPERS' JOURNAL, *if it could be satisfactorily done.*

We must say that our *experience* is greatly at variance with Novice's *theory*, in regard to wintering bees in double wall hives upon their summer stands. If Mr. Anderson will follow Gallup's directions, we think he will have no trouble in wintering his bees out of doors.

Mr. Dadant's letters were read with much interest. We were sorry that he had so much difficulty in procuring queens. But imagine, if you can, Mr. Editor, our surprise and disappointment upon learning by private advices, that out of about 350 queens that he brought home, only 69 were living upon arrival. Thus it seems that success has not yet been attained in importing queens. Cannot some Yankee, of an inventive turn of mind, contrive some plan by which we can succeed.

We fully agree with Mr. Lunderer as to the utility of the cloth honey boards, or "honey quilts," rather, as we term them, but we have no such trouble with them as he describes. This is owing to the style of frame we use. Instead of the old style of top bar, which is flat on the top, we use a square piece (five-eighths of an inch square), put in diamond shape. This gives us a bevel edge, above as well as below, and not a single bee is crushed or imprisoned when the quilt is put on, even though the tops of the frames are covered with bees. We make ours a couple of inches larger each way than the top of the frames. For summer use we prefer to leave out the cotton batting entirely. Mr. C. C. Miller wishes some one to tell him how to introduce queens successfully. Perhaps we can. We tried the methods most successfully used by others, but failure was often the result. We found, at times, when honey was abundant, and the weather favorable, that almost any good method would succeed, while at other and less

favorable times they would fail. So we went to work to see if some method could not be devised that *would* work under all circumstances. And here is the result of our experiments. Remove the reigning queen. We find her the most easily about four o'clock P. M. Put your queen you wish to introduce into a Gray & Winder cage, and lay it upon the frames. Now leave her there from one to four days. If honey is coming in abundantly, one day is long enough; if not, longer, according to circumstances. When ready to liberate her, put fifteen drops of essence of anise into one half pint of water that has been well sweetened. Sprinkle the combs and bees thoroughly, using a small brush broom, which we prefer to the odorator; sprinkle the cage, and then let the queen crawl down among the bees on one of the central combs. We always liberate queens now about the middle of the afternoon, and have never yet lost a queen by this method. In reply to Mr. Gastman's inquiry, if bees are ever smaller because bred in old comb, we should say, most emphatically, NO.

We, too, think that "sugar syrup should be thoroughly boiled before giving it to the bees.

We have no such trouble now, as "Dronings" complains of, in getting straight combs. We know that much depends upon the size and shape of the frame. We never did have our combs built true until we adopted the frame we now use, which is ten inches deep, twelve inches long, runs from side to side of the hive, and *are* close-fitting at the ends. In over 150 cases, we have not yet had *a crooked comb.* (No patent in view, remember!)

We find several errors in our own article, one of which is, the frames, and not the bees get waxed fast. Probably no one thought we meant that the bees "would wax themselves fast."

Before closing, we would like to ask a few questions, and if Novice had not yet ascended so high in the scale of human greatness as to become utterly oblivious to the wants of "we little folks," we would inquire by what motive he is actuated that impels him to stab Mr. H. A. King at every convenient opportunity. Is it spite, malice, and revenge? Or has he become surcharged with bee poison, and must *sting* in return? At any rate it seems to be one of his favorite modes of advancing (?) the cause of bee-culture. If we mistake not, he is quite sensitive about having his own corns tread upon. Does he suppose that others have any feelings like himself? Now, friend Novice, why not try and cultivate friendly feelings instead of stirring up discord.

We would like so write very much more, but nature asserts herself, and demands that we lay aside this rusty old pen and go to bed; and as it is now past twelve o'clock, we really think we must obey. So, once more, good night all.

HERBERT A. BURCH.

South Haven, Mich., October 14, 1872.

During this month, those who winter their bees on their summer stands should see to it, that the hives are well secured against cold winds, and protected from the rays of the noon-day sun.

[For the American Bee Journal.]

Patent Hives and Bee Journals.

MR. EDITOR:—Owing to the loss of my residence by fire in April last, as heretofore announced in your Journal, I have not found sufficient time to read the Journal as closely as I desired to, and have by no means had time to reply to an article, written by Mr. Gallup, on page 282, vol. 7. I will now endeavor to do so, and at the same time, will express my opinion in regard to Mr. Langstroth's hive, his patent on the same, and my views in regard to the bee journals of the country.

I would first state, with regard to the language used by Mr. Gallup, on the page above named, concerning the hives on exhibition at the Indianapolis convention of beekeepers, that although he may have given us a report in part, he nevertheless failed to qualify his language by telling us the whole truth, which failure leaves him still, as charged by me according to the construction that any one familiar with the English language must place upon his (Gallup's) phraseology.

In regard to the shallow excuse, he charges me with having used, in order to get my T. R. Allen hive in, I would remark that is indeed so shallow that Mr. G. cannot conclude that I am, or ever was in any way interested in it. I simply stated that it, the Allen hive, and the Langstroth hive were both there, and that they both were constructed on the two-story plan, a feature very desirable where the extractor is to be used, as the maturing bees were not interfered with in extracting honey from the upper set of frames.

The above is the substance of what I said in regard to the "Allen Hive," and is not in the least calculated to induce anyone to believe that I have any pecuniary interest at stake in the one or the other of these hives.

Now, Mr. G., please be honest enough to reply to my article, and not to what you see in my circulars and cards, as published in papers in no way related to the AMERICAN BEE JOURNAL.

I will here state, that in some respects, I prefer the Allen hive to any one I have ever seen; and in some other respects I give the Langstroth the preference over all other hives in use. I use about an equal number of each, using one style for one purpose and the other for another. I own some Langstroth territory, and am acting as general agent for the Allen Hive. Now, Mr. G., which am I puffing most?

I feel confident that the Langstroth patent is perfectly legitimate, and that Mr. Langstroth has not received neither the credit nor the money due him for his invention. But on the contrary, he has been maltreated and slandered. I do not pretend to say that Mr. G. is guilty of such conduct, but I am now addressing such parties as are not only guilty, but doubly so. And I will say farther, that these guilty parties should be, if possible, made to blush with shame, and be compelled to pay Mr. Langstroth what they justly owe him. I feel perfectly safe in hazarding the prediction that there was not a

single hive, embracing the movable comb feature, in use on this continent, and so arranged as to be of real value prior to the date of Mr. Langstroth's inventions and publications. But so soon as his discoveries were found to be of real value, efforts were made to dodge his patented features, and when they have been complained of, or were about to be brought to justice, the plea has been set up that he was not entitled to such claims as his letters patent called for. The result of which is, that hundreds of hives, nearly all containing some of Mr. L.'s patented features, have been thrown upon the bee-keeping public, and sold as the invention of the salesman, or his employer. At the same time, in cases where they contain any features worthy of note, they are in nine cases out of ten covered by the Langstroth patent. In some cases, parties get up a hive somewhat different from Mr. Langstroth's, and say there is no patent on it, and that they do not manufacture it for sale, but will send a description of it to any one wishing to use it for one dollar; or if that is too much, they will let it go for twenty-five cents. But in said description I am not aware that the purchaser is ever told that the movable comb contained in it, is covered by the Langstroth patent. Now, Mr. Gallup, my custom is that of stating fairly—in such deed, just what the patented features of the Allen hive are, so that no one can justly claim that I have sold him a single feature, covered by the L. patent. True, it contains a movable comb; but when the purchaser fairly sees that I have not sold him the right to use this feature, he certainly knows that I have not imposed upon him. I have never inquired of Mr. L. as to whether his patent covered the comb frame, as used in the Allen hive, or not; yet my own opinion now is, that it does. At any rate, Mr. Allen, when living, never denied to me but what he was indebted to Mr. Langstroth's invention for the movable comb feature of his hive. I am fully aware that this kind of talk is not well calculated to sell the Allen hive, but if it is never sold by me, until it is done in a fraudulent manner, it will remain unsold.

Now, Mr. Gallup, I hope that you, in company with all others, fully understand me on the patent hive question.

But you go on and state that some of these patent hive fellows no doubt wish that Gallup and the AMERICAN BEE JOURNAL were dead and buried. How this is with regard to certain ones I shall not say, but if you have reference to me, I must simply say in reply, that the statement is not true; for I have been a regular subscriber to the AMERICAN BEE JOURNAL since its first issue, and for ought I know, will be as long as I live. I have also recommended it as having no superior in this, or any other country. This is much more than I would be willing to say for some others in circulation. And, as regards yourself, I will say that I shall not enter a single complaint, if you live until the earth shall, from old age, moulder into dust, and still let you remain on the top of it, barking and snapping at nothing, as you have in so many instances done up to the present. But I would advise you to do less of this kind of work in future, as constant snapping will, in the course of time, wear the enamel off the best of teeth, and render them worthless.

In conclusion, Mr. Editor, permit me to state that the honey yield in this section of the country has not been very liberal this season, and I fear that many colonies will have to be fed through the winter. The golden rod is now in bloom, but does not appear to be yielding any honey so far; and as this is the only source from whence bees can collect honey at this season of the year, and as their present supply is scant, our prospects are not as flattering as we could desire. G. BOHRER.

Alexandria, Madison Co., Ind.

[For the American Bee Journal.]

Bees in Canada.

Bees did very well here during the early part of the summer, but as little buckwheat is raised in this part of the country, they suffer for the want of fall pasturage. But few bees are kept here, and little is known of their habits and proper management. The "taking up" process is still in vogue among the few who have them.

Mr. Editor, would you please make the suggestion in the journal that correspondents give the names of their post office, county and State. Many articles in the journal would be of much more value to me if I knew the exact location of the writer. No doubt others would be glad to have the same information. GEO. CORK.

Queenstown, Lincoln Co., Ont., Aug. 19, 1872.

Last winter was long and cold. Many colonies perished, some, no doubt, from carelessness, and others not knowing the proper conditions for successful wintering, but none for want of supplies, as quantity and quality was ample. I wintered seventy-two, all I had, in excellent condition in the spring, except the loss of a few queens, which is liable to happen any time, either winter or summer. Have not lost a colony of bees in seven years (after they were established twenty-four hours in the hive) from any cause; due attention at all seasons is absolutely necessary for success. This season, so far, but few swarms and little surplus.

WM. REYNOLDS.

Lexington, Ill., July 23, 1872.

The Tennessee Apiarian Society, at its regular meeting, September 14th, elected the following-named officers for the ensuing year:—President, James C. Owen, of Brentwood; Vice President, J. R. Spitler, of Edgefield; Secretary and Treasurer, W. E. Ladd, of Brentwood; Corresponding Secretary, J. W. Crocker, of Nashville.

The society meets in the Farmers' Club rooms, Nashville, the second Saturday in each month, for the dissemination of Apiarian information; all beekeepers, whether members or not, are invited to attend and participate in the meetings.

Free sample copies of Bee Journals can be had of the Secretary.